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JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

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THE SEVENTY-SECOND ANNUAL CONVENTION (1924) OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN BUFFALO, N. Y.

The 1924 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Buffalo.

For Association Roster see pages x and xii.

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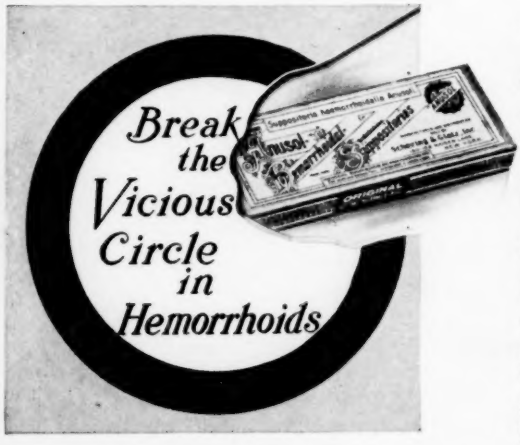

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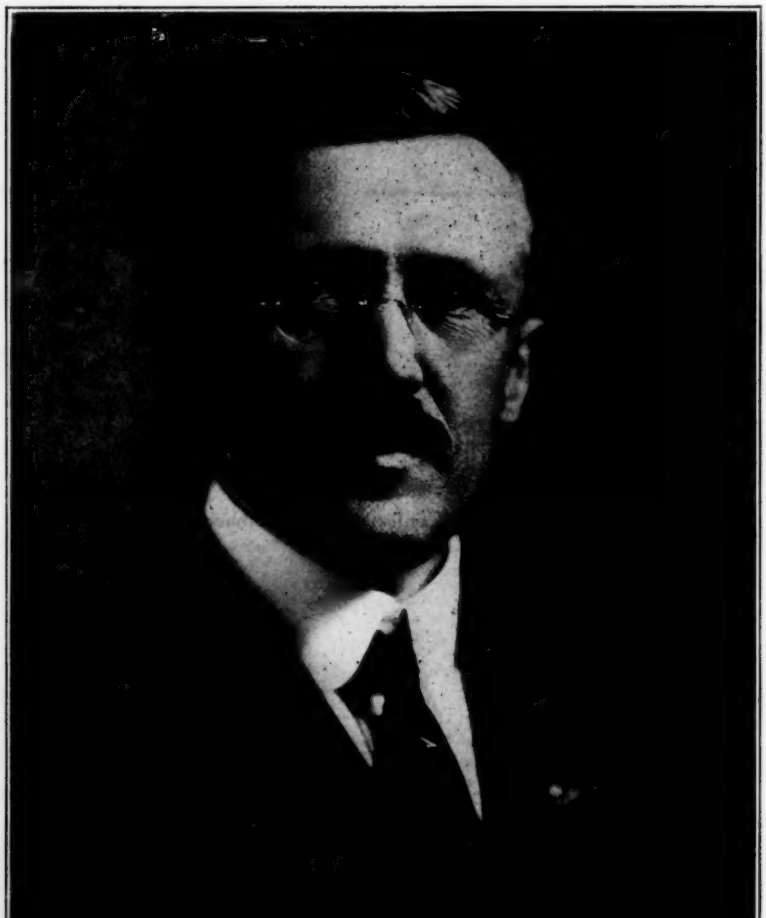

C. W. JOHNSON.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XII NOVEMBER, 1923 No. 11

CHARLES WILLIS JOHNSON.

The President of the American Conference of Pharmaceutical Faculties, Charles W. Johnson, celebrated the fiftieth anniversary of his birth, after his return home from the recent Asheville Convention, September 23rd. He is a native of Indiana where he was educated and, later, taught in the public schools of the "Hoosier State."

After graduating from the College of Pharmacy of the University of Michigan, in 1896, earning the degree of Ph.C., he practiced pharmacy in Ann Arbor and Detroit until 1898, when he continued his studies in pharmacy and became assistant in Chemistry at the University and, in 1900, received the B.S. degree.

He was instructor in Chemistry in the State University of Iowa for two years and then again returned to his Alma Mater and, in 1903, was awarded the Ph.D. degree. Thereafter, he was elected Professor of Pharmaceutical Chemistry and Dean of the College of Pharmacy of the University of Washington, where he is entering his twenty-first year of service.

Since Dean Johnson came to Seattle he has been active in the Washington State Pharmaceutical Association, was twice honored with the presidency, and during these years his co-worker, the late A. W. Linton, served as secretary, evidencing the close attachment of the State organization and the College of Pharmacy. His interest in the organization continues and his counsel is influential in guiding its affairs.

He is a member of the Committee of Revision of the United States Pharmacopœia. His activities in the American Pharmaceutical Association and the American Conference of Pharmaceutical Faculties are well and favorably known; he has made a dozen trips across the continent to attend the annual meetings of these bodies.

During vacation time Professor Johnson enjoys out-of-door life in the mountains, studies and engages in "Contemplative Man's Recreation." E. G. E.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

AMERICAN PHARMACY AND THE AMERICAN PHARMACEUTICAL ASSOCIATION.

IT may be said that the plan of reorganization of the American Pharmaceutical Association adopted at Cleveland and put into effect at Asheville had two major purposes:

First, to correct an impression quite generally held, whether correctly or not, that the American Pharmaceutical Association was so organized and conducted as to mainly appeal to and serve those pharmacists who are interested to the greater extent in the scientific and educational aspects of pharmacy.

Second, and by far the most important, to so rearrange and correlate and broaden its organization as to make it more representative of American pharmacy as a whole and to best equip it to serve in solving those general and ever-increasing problems with which pharmacy has to deal in its own interest and in its responsible connection with the public health.

The American Pharmaceutical Association adapted itself to these purposes in the finest spirit, and in its willingness to accommodate itself to the new conditions has lived up to its already high tradition for disinterested service.

As reorganized, the American Pharmaceutical Association is now a fully representative national organization in which every pharmacist and every branch of pharmacy has and can exercise the right to a voice in deciding its policies and actions; it has the simplest and best organization machinery that could be devised, without losing any of the strength or advantages that it already possessed.

But no organization can function by itself and no organization machinery can operate to the best advantage without power and without direction. In this case, the power and direction must be supplied by those organizations and their members which are now or will become affiliated with the reorganized American Pharmaceutical Association, and which will then control in great measure its policies and activities.

Their point of contact with the American Pharmaceutical Association is the House of Delegates and, in the new form of organization, the power, and consequently the responsibility, of the House was increased more than that of any other division, so as to give the State Associations and others the important part in the control of the American Pharmaceutical Association.

The House of Delegates now becomes the legislative division of the Association; it initiates and directs the policies, it either elects or nominates the officers, it ratifies most committees, and receives and acts upon practically all reports covering the diversified activities of the Association, subject only to final review by the Association in general session.

The State Associations will have the largest representation in the House, as should be the case. The national organizations, certain departments of the Federal Government, the scientific and professional sections of the American Pharmaceutical Association, and its Board of Directors, will supply the other delegates.

The House of Delegates could only make a start on its new and increased activities at Asheville, but a study of the summary of its proceedings, as given in this issue of the JOURNAL, will suggest very forcibly what can be expected from it when it is in full operation and becomes, what is confidently anticipated, the clearing house for the State Associations and the other organizations represented in it.

The House of Delegates is to be congratulated on reaching, by steady and sound development, the important position which its founders so wisely foresaw for it, and on the selection of its present officers, who will guide it safely through the initial stages of its greater responsibility.

But for real success, it must have the helpful interest, the constructive criticism and the close coöperation of the State Associations and the other organizations represented in it.

The opportunity is now open to them to make the American Pharmaceutical Association the best possible association for their purposes and needs. This requires that its membership be increased, that its financial resources be strengthened, that the State and other organizations send their best equipped members as delegates, and that it be actually used as a clearing house for the discussion and decision of matters of mutual and general interest.

For sound pharmaceutical progress the State Associations in particular must learn from the experiences of each other, must reach mutual decisions and must act in concert and in support of each other.

The American Pharmaceutical Association through its House of Delegates offers the machinery and organization for this purpose. To quote from President Koch's address: "The American Pharmaceutical Association has gone on record as favoring an amalgamation of interests with the other Associations for the common good. Giving all, it merely asks in return the whole-hearted support and coöperation of those whom it serves."

E. F. KELLY.

THE JUNIOR COLLEGE.

THE contributions in the Department of the American Conference of Pharmaceutical Faculties—"Should Students Be Selected?" and "Eliminate the Unfit at the Source"—seem to carry the idea of the Junior College, now being considered in many States and in force in some of them. The item of expense in educating students in the colleges enters into the discussion. Statements have frequently been made that it requires about a year in college to eliminate the unfit, and that the expense in such work is enormous requires no statistics. Because some students are not fit for college work does not indicate that they have no ability; there are many who go out from college without a feeling of fitness to assume any business or professional activities and do them well, and that does not mean that a college education is not of momentous importance and paramount value. Work which trains for specific service and definite accomplishment is worthy work.

States provide education under public support in "common schools" in high schools and in State colleges and Universities, there is now a tendency toward a revision of the present educational system with the end in view that the colleges

and universities may be better enabled to educate for definite lines of work. For years many educators have deplored the fact that professional graduates are not prepared to enter their life work until pretty well up in the twenties. This is not intended to discuss the advisability or inadvisability of store experience for students entering pharmacy schools, nor whether store experience under present conditions is worth while or not.

The coming of the Junior College is considered by an increasing number as an aid for earlier decision relative to the life-work of the young men and women and will subserve the colleges and universities in organizing their work for more direct training for the specific activities for which they are best fitted. To that extent at least the subject has an interest for pharmacists and therefore this comment.

When President Harper organized the University of Chicago (quoting an article in a recent issue of the *Dallas News*) "he divided the undergraduate work of that school into what he called the junior college students and the senior college students. When a student finished the junior college work his educational progress was marked by a certificate presented by the University. Two ideas were doubtless back of the plan—one to separate the younger youth from the older and the other to help shape the senior college work toward professional ends." To cite the co-operative idea, or economical, the California junior college law provides $100 per year per student to match the $100 provided by the junior college district.

There are opposition arguments but the plan is receiving favorable consideration in a number of States and more admit its possibilities—that junior college training preceded by modern high school education will enable the universities to shape their work for those who seek to enter professional lines so that these students will, as stated in the foregoing paragraphs, be efficiently prepared for their life-work at an earlier period than under the present system of education. The purpose of the comment, as before stated, is chiefly for taking cognizance of a movement which is gaining ground, and was prompted by the contributions to which reference has been made. E. G. E.

WHAT IS WRONG WITH THE UNITED STATES? WHAT IS THE MATTER WITH PHARMACY?

IN a recent article contributed by Ambrose Hunsberger to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION,* the author analyzes the question of what is the matter with pharmacy and concludes that there is really nothing the matter with it.

An editorial in the *Philadelphia Evening Ledger* of October 18, prompted by the recent conference of Governors of thirty-seven States, discusses the question of what is wrong with the United States. The editor arrived at the conclusion that there is nothing greatly the matter with America and Americans. Excerpts from the editorial follow:

"It seems perfectly fair, and, indeed, almost inevitable that Americans at large should be trying to decide in the meantime what is wrong with the people who assume to govern them from political offices. For, of course, there is nothing greatly the matter with America and Americans.

* JOUR. A. PH. A., August 1923, p. 723.

But there are some rather wide differences of opinion and sentiment between large groups of the population and the men who at the moment exercise the powers of high political offices.

"The average normal-minded citizen rages within whenever one of his zealous countrymen arises and wrings his hands in public and asserts that we are going lawlessly to the dogs. There is a great deal of disobedience to some of the new laws. But it is a question in many minds whether this sort of thing doesn't represent the fierce unwillingness of many people concerned to be treated as if they belonged in a nursery. A great many leaders in politics succumbed to the belief that law, if it is made rigorous enough, can be used as a substitute for good character or right moral convictions in the individual. Some passionately earnest people with the best intentions in the world are willing to call out the army and navy to compel others to be as good as they are. * * *"

"We always have been by instinct a law-abiding people. Observers from the outside always were impressed by the disposition of Americans to coöperate voluntarily and enthusiastically with their Government. Yet we have more varieties of police than any other country under the sun. Government regulation extends nowadays from a man's office to his home, from railroads to the family dinner table."

Reasons or causes for law violation are traceable to the war but many transgressions are the result of "short cut" means of uplift by legislation of which many are becoming weary. Unfortunately we have not arrived at the time when greed and desire must not be reckoned with; thousands willingly gave their health or lives in the war, many "gave until it hurt," but there were others who took advantage of the opportunity to make money even if dishonestly.

We are justly proud of the part taken by the United States before, during and since the war. In times of real need the governing thought is to relieve the unfortunate—these actions as well as morals are guided through the minds and consciences of the people, but always some will be found deficient. The thought may be applied to pharmacy. Long before laws were enacted pharmacists restricted sales of items which might prove harmful and their motives were often questioned when they insisted on regulations for such sales. Codes of ethics for the guidance of those engaged in pharmacy voice the sentiments of a majority and the people should give aid in keeping those out of the profession whose moral standards are low and who are unfit to assume its obligations. Those owning pharmacies solely for investment and whose knowledge and thoughts are thus circumscribed, have not always the viewpoint of the pharmacist. Herein is an opportunity for educating the public—that it is necessary is evidenced by the patronage given to stores the services of which do not reflect credit on pharmacy, and opposition to enactments providing for higher standards; that it is possible has been shown by the passage of the New York law which restricts ownerships of pharmacies to pharmacists.

E. G. E.

NEW MAGAZINE IN HEALTH FIELD.

In an attractive new dress, in a more compact and readable form, with its value enhanced by the dignity of print, the most recent number of *Venereal Disease Information*, a monthly publication issued by the United States Public Health Service at Washington, has just come from the press.

For some time past this information has been furnished State health departments, venereal disease clinicians, hospital libraries, medical society libraries, medical school libraries, medical journals, public health nurses' associations, training schools for nurses, social service agencies and other organizations in the form of mimeographed monthly abstracts. The wide use made of the information contained in these abstracts and their popularity so impressed the Public Health Service with the desirability of presenting the information in a more readable form that the new publication is the result. The subscription price for this new periodical is 50c per year payable to the Superintendent of Documents, Government Printing Office, Washington, D. C.

THE EFFECT OF LIGHT ON THE PHARMACOLOGICAL ACTION OF QUININE AND QUINIDINE SULPHATES.*†

DAVID I. MACHT AND ELMER J. TEAGARDEN, JR.

INTRODUCTION.

It is well known that solutions of quinine and quinidine sulphates exhibit a blue fluorescence. This fact suggested the idea that possibly the pharmacological and toxicological effects of these salts might be influenced by the action of light. Such an idea was not altogether far-fetched or too presumptive in view of some older observations by Tappeiner and Raab (1) who have found a difference in toxicity of solutions of the dye acridin for paramecia in light and darkness. And again in view of the difference in response of various isolated organs on treatment with eosin obtained by Amsler (2), Pick (3), and Kolm (4) under similar circumstances. Accordingly an experimental inquiry into the subject was undertaken.

In a previous communication one of the authors (5) has already called attention to the difference in toxicity in quinine and quinidine sulphate in frogs in light and darkness. It was shown that these salts when injected into frogs were much more toxic when the animals were subsequently exposed to light, the minimal lethal dose being much smaller in light than in darkness. Thus, for instance, a dose of 0.5 mgm. of quinidine sulphate per gram weight of frog, *Rana clamata*, injected into the anterior lymph sac on exposure to light produced paralysis of the frog in twenty-five minutes and complete arrest of the heart within thirty minutes. After injection, on the other hand, of another frog of the same species with an equivalent amount of the same drug with the animal placed in a dark cupboard, the dose was found to have been much less toxic, and the frog still alive twenty-four hours after the beginning of the experiment. It was further shown that the activation of quinine and quinidine sulphate was due chiefly to rays of shorter wave length belonging to the violet and ultraviolet regions of the spectrum and it was also established that the greater toxicity of the drugs in light was not due to the difference in temperature, inasmuch as even when the frogs were kept on ice and exposed similarly to direct sunlight the same effects were produced.

In the present communication the authors have undertaken to study the influence of light on small doses of the above salts on higher animals and more particularly albino rats. It has been found by Stübel (6) and others that ultraviolet rays of light penetrate to some extent below the surface of the body and it was thought possible that in this way the efficacy of quinine and quinidine solutions when injected into rats might be influenced by exposure to sunlight and other sources of ultraviolet radiation.

METHOD.

The method employed in the present work was the study of the behavior of trained albino rats in the circular maze and has been described repeatedly by Macht and collaborators in a number of papers (7),(8). The circular maze shown in

* The expenses of this investigation have been supported in part by a grant from the Research Fund of the American Pharmaceutical Association.

† From the Pharmacological Laboratory, Johns Hopkins University.

Figure 1 is made with wooden base and aluminum walls. The base is 150 cm. in diameter and 4 cm. in thickness. Its upper surface is marked off by grooves into a series of concentric circles. The diameter of each of the circles is as follows, beginning with the outermost one: 140 cm., 120 cm., 100 cm., 80 cm., 60 cm., 40 cm., and 20 cm. Into the circular grooves are inserted sheets of aluminum 18.5 cm. high and 0.8 mm. thick. Each strip of aluminum is cut just 10 cm. shorter than the length of the circular grooves into which it is to be fitted, thus giving an opening into the alley. By means of this arrangement it is possible to slide the aluminum around in its groove and thus to place the entrance in any desirable position. In the present investigation, the openings or entrances to the alleys were placed in the position indicated in Figure 1, there being 7 openings so arranged that the rat had to make alternate turns to right and left, in the order indicated by Nos. 1 and 7. In addition to the doors or openings, the alleys are provided also with obstructing partitions, which form a number of blind-cul-de-sacs. A wire screen prevents the animals from crawling over the top.

The study of the behavior of the rats in the circular maze is begun by placing an animal in the center of the maze and feeding it from the bowl *F* for three successive days. During these three preliminary feedings, which last from ten to fifteen minutes, the entrance *7* is blocked off, so that the animal may not roam around. On the fourth day, the rat is placed in the cage *E*, then the trap-door *T* is raised and the animal allowed to enter the first alley. The animal then gradually learns to find its way to the center of the maze, when it is taken out and the experiment is repeated. Generally three trials are made on each day. For work with the maze, albino rats, which are very tame, must be employed. The animals must be handled gently with the hands and under no circumstances must they be picked up with forceps or similar instruments. The most suitable animals are found to be rats approximately sixty to ninety days old. Older animals are apt to be sluggish, while very young rats do not learn the maze problem so readily. Ordinarily, the albino rats learn the maze problem in about two weeks, and sometimes within a shorter period of time. An animal is considered to have solved the maze problem when it has learned to find its way into the center of the maze by the shortest route, that is, without any errors, on three successive trials. The technic of trials is described more in detail by Hubbert (9).

ANALYSIS OF THE DATA FURNISHED BY THE MAZE.

The maze problem enables the psychologist to study the mode of learning of a rat. In studying the effect of drugs, the maze problem can be utilized in two ways. Animals may be subjected to the influence of drug action first and then trained in the maze with the purpose of ascertaining the effect on the rate of learning. Again, animals may be first taught to solve the maze problem and then the effect of a drug is studied in reference to its influence on their behavior, memory-habit, etc. Furthermore, other data can be obtained from the maze, after administering drugs to rats, which may show the effect on neuromuscular coördination, and various somatic changes. As to exactly what the mechanism of learning the maze problem may be, the explanations given by various psychologists differ widely. Among the hypotheses which have been advanced to account for the reintegration of conduction paths in learning, there are at least three which stand out as rather op-

posed to one another in respect to the neural processes which they imply (10). The hypothesis suggested by Ladd and Woodworth (11) assumes inhibition of successive activities as the fundamental process which results in the selection and fixation of random activities. The second hypothesis, given by Angell and others (12), assumes nervous reinforcement as the fundamental process by which successive acts become linked together in habit-formation. The third hypothesis (Watson (13)) depends chiefly upon the chance spreading of nervous excitation, or the simultaneous activation of two afferent pathways in such a way that the final common part of one is able to divert the discharge of the other and so bring about a permanent connection between itself and this afferent path. These hypotheses by no means exhaust the theoretical considerations of the maze problem (Dashiell (14)).

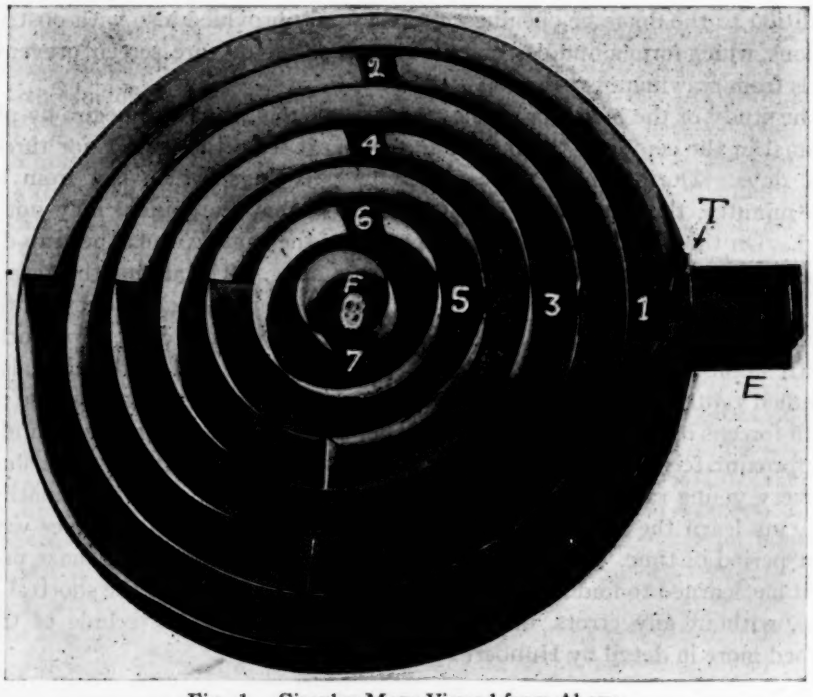

Fig. 1. Circular Maze Viewed from Above.
E, entrance cage; *T*, trap door leading into first alley; Nos. 1 to 7 indicate the gates to the successive alleys; *F*, food.

For the study of the drug action, however, the various theoretical considerations are of secondary importance and the data obtained are of a much more definite nature, as will be seen from the following exposition.

THE EFFECT OF SUNLIGHT AND ULTRAVIOLET RAYS ON THE BEHAVIOR OF NORMAL RATS.

Six young adult male rats aged about six months and 3 old male rats aged about twelve months were employed for the control experiments. The animals were carefully trained in the circular maze and the effects of exposure to light were studied on their behavior. At first the animals were exposed to direct sunlight;

this was found to have practically no effect on their behavior. Subsequent to exposure to the sun a series of experiments were made with exposure of the animals to the radiation of a mercury vapor quartz lamp (Hanovia Alpine Sun Lamp*) for periods varying from ten to fifteen minutes at a time and the behavior of the animals was again observed.

The results obtained were quite definite and are expressed in Tables 1 and 2.

TABLE 1.

Effect of exposure to ultraviolet rays (Alpine Sun Lamp) on behavior of rats in the circular maze. A. Young rats.

DATE AND LENGTH OF EXPOSURE	NUMBER OF EXPERIMENT	TIME						ERRORS					
		Before	Average		After	Average		Before	Average		After	Average	
	1	14 8 8	10		9 5 7	7		1 0 0	0.3		0 0 0	0	
	2	12 7 5	8		8 5 7	6.7		1 0 0	0.3		0 0 0	0	
12-11-22	3	6 16 5	9		10 5 5	6.7		0 1 0	0.3		1 0 0	0.3	
15 min.	4	9 16 13	12.7		6 5 5	5.3		0 1 1	0.7		0 0 0	0	
	5	13 9 8	10		8 7 8	7.7		1 0 0	0.3		0 0 0	0	
	6	6 6 6	6		6 5 5	5.3		0 0 0	0		0 0 0	0	
			9.3			6.4			0.32			0.05	
	7	28 22 9	19.7		21 9 7	12.3		0 1 0	0.3		2 0 0	0.7	
	8	30 7 12	16.3		23 7 20	16.7		2 0 0	0.7		2 0 1	1.0	
1-20-23	9	36 23 14	22.3		15 11 8	11.3		1 0 0	0.3		0 0 0	0	
10 min.	10	23 60 10	31		15 9 9	11		0 3 0	1.0		0 0 0	0	
	11	27 7 23	20.7		6 12 5	7.7		1 0 3	1.3		0 1 0	0.3	
	12	8 10 9	9		8 7 8	7.7		0 0 0	0		0 0 0	0	
			19.8			11.1			0.60			0.33	
	13	10 7 15	10.7		7 7 7	7		0 0 0	0		0 0 0	0	
	14	12 20 12	14.7		11 6 10	9		0 1 1	0.7		1 0 1	0.7	
1-30-23	15	18 9 14	13.7		51 26 9	28.7		1 0 0	0.3		* 1 0	?	
15 min.	16	10 15 12	12.3		7 9 6	7.3		1 0 0	0.3		0 0 0	0	
	17	12 13 11	12		8 8 5	7		0 1 0	0.3		0 1 0	0.3	
	18	9 6 5	6.7		6 11 15	11.7		0 0 0	0		0 1 3	1.3	
			11.7			11.8			0.37			0.467	
			(11.3)			(8.4)			(0.26)			(0.46)	
	19	13 7 7	9		9 6 6	7		0 0 0	0		0 0 0	0	
	20	17 7 12	12		30 6 6	14		0 0 1	0.3		3 0 0	1.0	
2-6-23	21	90 14 15	41.7		30 17 8	18.3		2 1 0	1.3		2 0 0	0.7	
15 min.	22	21 8 8	12.3		12 7 6	8.3		0 0 0	0		0 0 0	0	
	23	9 8 28	15		9 9 17	11.7		0 0 1	0.3		0 0 2	0.7	
	24	17 7 7	10.3		8 7 7	7.3		0 0 0	0		0 0 0	0	
			16.7			11.1			0.32			0.40	
	25	10 5 6	7		5 6 6	5.7		0 0 0	0		0 0 0	0	
	26	8 5 5	6		9 6 7	7.3		0 0 0	0		0 0 0	0	
2-8-23	27	30 6 7	14.3		13 10 9	10.7		0 0 0	0		0 0 0	0	
15 min.	28	21 13 15	16.7		7 7 8	7.3		2 0 2	1.3		0 0 0	0	
	29	13 32 9	18		10 8 8	8.7		0 3 0	1.0		1 0 0	0.3	
	30	5 8 29	14		6 7 6	6.3		0 0 3	1.0		0 0 0	0	
			12.7			7.7			0.55			0.05	

* = many errors.

TABLE 2.

Effect of exposure to ultraviolet rays (Alpine Sun Lamp) on behavior of rats in the circular maze. C-1. Old rats.

DATE AND LENGTH OF EXPOSURE	NUMBER OF EXPERIMENT	TIME						ERRORS					
		Before	Average		After	Average		Before	Average		After	Average	
7-22	1	6 6 6	6		6 6 7	6.3		0 0 0	0		0 0 0	0	
1o min.	2	7 6 5	6		5 6 5	5.3		0 0 0	0		0 0 0	0	
	3	7 7 8	7.3		8 5 8	7		0 0 0	0		0 0 1	0.3	
			6.4			6.2			0			0.10	
	4	15 12 6	11		10 7 9	8.7		1 1 0	0.7		1 0 0	0.3	
12-14-22	5	7 6 6	6.3		7 7 9	7.7		0 0 0	0		0 1 1	0.7	
15 min.	6	7 6 8	7		6 6 6	6		0 0 0	0		0 0 0	0	
			8.1			7.5			0.23			0.33	
	7	24 10 10	14.7		12 25 12	16.3		0 0 0	0		0 1 0	0.3	
1-20-23	8	6 6 6	6		11 5 6	7.3		0 0 0	0		1 0 0	0.3	
15 min.	9	21 6 7	11.3		10 7 7	8		1 0 0	0.3		0 0 0	0	
			10.7			10.5			0.10			0.20	
1-23-23	10	8 8 8	8		10 8 12	10		0 0 0	0		0 0 0	0	
15 min.	11	7 6 6	6.3		26 9 7	14		0 0 0	0		2 1 0	1.0	
	12	10 7 15	10.7		31 7 8	15.3		0 0 0	0		2 0 0	0.7	
			8.3			13.1			0			0.57	
1-30-23	13	13 33 33	29.7		21 11 17	16.3		1 3 1	1.7		1 0 0	0.3	
15 min.	14	28 27 11	22		7 8 7	7.3		1 2 0	1.0		0 0 0	0	
	15	9 18 7	11.3		8 9 21	12.7		0 1 0	0.3		0 0 2	0.7	
			21.0			13.1			1.00			0.33	
2-3-23	16	28 9 9	15.3		24 31 27	27		1 0 0	0.3		0 0 0	0	
15 min.	17	12 7 7	8.7		6 8 6	6		0 0 0	0		0 0 0	0	
	18	44 17 11	20.7		20 9 22	17		1 1 1	1.0		0 0 1	0.3	
			14.9			16.7			0.43			0.10	
2-6-23	19	17 9 31	19		11 83 14	26		1 0 3	1.3		0 3 0	1.0	
15 min.	20	7 7 33	15.7		12 7 6	8.3		0 0 3	1.0		2 0 0	0.7	
	21	12 17 29	19.3		21 10 23	18		0 1 3	1.3		1 0 1	0.7	
			18.0			14.1			1.20			0.80	
2-8-23	22	7 14 14	11.7		11 13 16	13.3		0 0 0	0		0 0 0	0	
15 min.	23	8 10 7	8.3		7 5 5	5.7		0 0 0	0		0 0 0	0	
	24	15 15 15	15		9 12 15	12		1 0 1	0.7		0 2 0	0.7	
			11.7			10.3			0.23			0.23	

A careful analysis of all the data contained in the above tables as well as other observations on the rats before and after radiation indicate that the effect of ultraviolet rays on the behavior of rats in the maze is either negative or more often slightly stimulating. This stimulating effect on the muscular activity of the animals is of a temporary character, persisting only for a few hours. The animals were always found to have gotten back to normal within twenty-four hours. The more intimate explanation of the results obtained is not quite clear. It is possible that increased muscular activity is merely a result of an irritating action by the rays. On the other hand no other deleterious effects produced by these rays were

* Loaned by courtesy of the Hanovia Chemical & Mfg. Co., Newark, N. J.

noted. Even conjunctivitis occurred only occasionally and was never very marked. The general condition of the animals, their nutrition and other behavior were not found to be impaired in any way.

EFFECT OF LIGHT ON INJECTIONS OF DRUGS.

Having ascertained the influence exerted by light itself on the animals experiments were begun in order to determine the relation of light and darkness to the potency of the fluorescent solutions of quinine and quinidine sulphate. The procedure employed was to first determine the running time and number of errors, if any, of a given rat on three successive trials and then to inject a solution of one of the drugs and expose the animal either to light or to darkness and study its behavior after a given period of time (fifteen to thirty minutes after injection). Inasmuch as solutions of sodium chloride reduce the fluorescence of quinine and quinidine sulphates to some extent the drugs were injected as a rule in aqueous solution. Injections were made in some experiments intraperitoneally and in others subcutaneously. It was found that both intraperitoneal and subcutaneous injections produced exactly similar effects except that drugs introduced by the intraperitoneal route were absorbed a little more rapidly.

TABLE 3.
Effect of quinine sulphate in light.

EXPERIMENT	SERIES OF RATS	DOSE	EXPOSURE	BEFORE TREATMENT		AFTER TREATMENT	
				Average speed	Number of errors	Average speed	Number of errors
		mgm.	minutes	seconds		seconds	
1. Sunlight	A	2	10	9.0	0	9.0	1
2. Sunlight	A	2	10	6.3	0	14.3	4
3. Sunlight	A	2	10	5.6	0	26.3	4
4. Sunlight	C	4	10	6.0	0	7.6	0
5. Sunlight	C	4	10	5.3	0	5.3	0
6. Sunlight	A	6	20	7.7	0	Stalled and muscular weakness	
7. Sunlight	A	6	20	5.0	0	Stalled and muscular weakness	
8. Sunlight	A	6	20	5.0	0	Stalled and muscular weakness	
9. Sunlight	C	8	15	5.7	0	60.0	10
10. Sunlight	C	10	15	10.0	2	Ataxia. Does not run	
11. Diffuse sunlight	A	6	15	14.0	1	Stalled	
12. Diffuse sunlight	A	6	15	7.0	1	Stalled	
13. Diffuse sunlight	A	6	15	11.7	1	62.0	2
14. Quartz lamp	C	6	15	5.7	0	9.3	1
15. Quartz lamp	A	4	15	22.0	4	23.0	0
16. Quartz lamp	A	4	15	20.0	6	44.0	6
17. Quartz lamp	A	8	15	15.3	2	Stalled. Muscular weakness	
18. Quartz lamp	C	8	20	15.7	2	Stalled. Very toxic	
19. Quartz lamp	A	6	20	11.3	2	30.0	2. weakness
20. Quartz lamp	A	6	20	33.0	4	Completely lost	
21. Quartz lamp	C	8	10	16.0	4	Does not run	
22. Quartz lamp	C	8	10	8.0	0	200.0	Very many
23. Quartz lamp	A	2	15	35.0	6	29.0	4
24. Quartz lamp	A	2	25	22.0	6	12.3	0
25. Quartz lamp	A	2	25	8.7	0	19.7	4

TABLE 4.
Effect of quinine sulphate in dark.

EXPERIMENT	SERIES OF RATS	DOSE	DURATION	BEFORE TREATMENT		AFTER TREATMENT	
				Average speed	Number of errors	Average speed	Number of errors
		mgm.	minutes	seconds		seconds	
1. In dark	A	6	25	13.0	2	Stalled but more active than in light	
2. In dark	A	6	20	6.0	0	43.0	4
3. In dark	A	6	20	5.7	0	Stalled but more active than in light	
4. In dark	C	8	30	12.7	2	63.3	3
5. In dark	C	10	15	9.0	0	Stalled and ataxic	
6. In dark	A	6	15	7.0	0	102.5	2
7. In dark	A	6	10	24.3	3	Does not run	
8. In dark	A	6	20	9.7	0	85.0	3
9. In dark	C	4	20	9.0	0	15.0	2
10. In dark	A	4	20	13.0	0	27.3	1
11. In dark	A	8	15	12.7	0	300.0	3
12. In dark	C	8	18	7.0	0	Lost but more active than in light	
13. In dark	A	6	20	6.3	0	100.0	2
14. In dark	A	6	20	16.7	3	100.5	2
15. In dark	C	4	25	14.7	4	27.0	2
16. In dark	A	2	22	8.7	2	7.7	0
17. In dark	A	2	24	8.7	0	9.3	0
18. In dark	A	2	20	18.0	4	12.7	2
19. In dark	C	6	15	10.0	0	30.0	2
20. In dark	C	6	18	6.9	0	9.0	0
21. In dark	A	4	28	9.3	0	8.7	0
27. In dark	A	4	30	11.7	0	13.3	0
23. In dark	A	3	20	6.8	0	7.0	0
24. In dark	A	3	30	7.0	0	7.0	0
25. In dark	A	4	20	12.3	0	11.0	0
26. In dark	A	4	20	12.0	1	12.0	1

The effect of the injections of quinine and quinidine were studied on the same rats both in the dark and on exposure to light so that the difference, if any, could be more easily detected. In order to study the effect of non-exposure to light the animals were kept in a cage covered by a dark blanket allowing, however, perfect ventilation. The effects of light waves were studied in three ways; some animals were kept in diffused daylight after injection, others were exposed to direct sunlight, and still others were exposed to the ultraviolet radiation of a quartz lamp (Hanovia Alpine Sun Lamp). It is needless to state that care was taken to radiate the

animals in coarse meshed wire cages without the intervention of glass windows which cut out a large proportion of short waves. The results obtained are tabulated in Tables 3 to 6.

In the tables the average running time of the rats and the number of errors committed before and after injection of the drugs are indicated. In addition to the data expressed in the tables observations were made on the general behavior, muscular activity, etc., of the animals which are referred to in the general discussion. Two series of rats were studied: Series A comprised 12 young adult rats, the average weight of which was about 125 grams, Series C comprised older rats of a larger size, the average weight of each being 250 grams. These facts should be borne in mind on studying the tables. The doses indicated are the total injected in each animal; in other words they indicate the number of milligrams per 125 grams weight of rats in Series A and 250 grams of rat in Series C.

TABLE 5.
Effect of quinidine sulphate in light.

EXPERIMENT	SERIES OF RATS	DOSE	EXPOSURE	BEFORE TREATMENT		AFTER TREATMENT	
				Average speed	Number of errors	Average speed	Number of errors
		mgm.	minutes	seconds		seconds	
1. Sunlight	A	2	10	7 3	0	Very bad. lost way	Completely
2. Sunlight	A	2	10	9.3	0	8.6	1
3. Sunlight	A	2	10	11 3	0	9.7	0
4. Sunlight	C	4	10	5.6	0	10 3	1
5. Sunlight	A	6	20	7 6	1	Stalled. weakness	Muscular
6. Sunlight	A	6	20	10.0	1	Stalled. weakness	Muscular
7. Sunlight	A	6	20	5.7	0	Stalled. weakness	Muscular
8. Sunlight	C	8	15	6 3	0	19 0	2
9. Sunlight	C	8	15	5.0	0	20.0	2
10. Sunlight	C	10	15	7.0	1	Ataxia.	Stalled
11. Sunlight	C	10	15	5 7		Ataxia.	Stalled
12. Diffuse sunlight	A	6	16	15 0	1	Stalled	
13. Diffuse sunlight	A	6	15	14 3	1	Stalled	
14. Diffuse sunlight	A	6	16	10 3	2	Stalled	
15. Quarts lamp	C	6	15	7.7	0	9 3	0
16. Quarts lamp	A	4	15	23.3	4	57.0	4
17. Quarts lamp	A	8	15	31 0	5	150.0	6
18. Quarts lamp	C	8	20	23 6	3	Stalled.	Very toxic
19. Quarts lamp	A	6	20	12 3	2	210 0	10
20. Quarts lamp	A	6	20	17 0	6	22.7	4
21. Quarts lamp	A	6	20	8 7	0	40 0	2

TABLE 6.
Effect of quinidine sulphate in dark.

EXPERIMENT	SERIES OF RATS	DOSE	DURATION	BEFORE TREATMENT		AFTER TREATMENT	
				Average speed	Number of errors	Average speed	Number of errors
		mgm.	minutes	seconds		seconds	
1. In dark	A	6	30	8.0	0	Stalled	
2. In dark	A	6	30	7.3	0	Lost but more active than in light	
3. In dark	A	6	25	8.7	0	Stalled	
4. In dark	C	8	35	14.3	3	22.0	1
5. In dark	C	8	25	9.0	0	11.0	0
6. In dark	C	10	15	15.0	2	58.0	1
7. In dark	C	10	17	17.3	3	Stalled but less depressed than in light	
8. In dark	A	6	26	10 0	0	33 0	1
9. In dark	A	6	24	13 0	1	Stalled but more lively than in light	
10. In dark	A	6	22	7.7	0	Stalled but more lively than in light	
11. In dark	C	8	20	25.3	4	61.0	2
12. In dark	C	8	28	6.3	0	80.0	2
13. In dark	A	4	15	14.0	2	11.0	0
14. In dark	A	8	25	26.0	4	41.6	0
15. In dark	A	6	15	11.0	2	65.0	2
16. In dark	A	6	20	16.7	4	Does not run	
17. In dark	A	6	25	23.6	2	29.3	2
18. In dark	C	4	23	7.3	0	10.7	2
19. In dark	C	4	25	9.7	0	24.7	2
20. In dark	A	2	28	18.3	2	14.0	2
21. In dark	A	2	28	7.0	0	5.0	0
22. In dark	C	6	20	20.7	2	19.3	0
23. In dark	A	4	20	17.7	4	28.0	4
24. In dark	A	4	23	10.0	0	11.0	0
25. In dark	A	4	25	15.3	2	15.0	2
26. In dark	C	8	10	31.0	4	18.3	4
27. In dark	A	2	20	38.3	0	16.3	0
28. In dark	A	2	17	26.0	2	17.0	2
29. In dark	C	4	20	7.7	0	12.0	2
30. In dark	C	4	20	20.3	5	41.7	5

RESULTS.

An analysis of all the data obtained with injections of quinine and quinidine sulphates in the white rats brought out pretty definitely a number of facts. It was found that when the animals were exposed to light the action of the drugs was intensified. This was especially true when smaller doses of the alkaloids were injected. Thus, for instance, in the case of quinine sulphate when doses varying from 2 to 4 mgm. of the salt were injected into the rats of series A, the effect in darkness after exposure, for fifteen minutes, was very slight indeed. The running time was slightly increased, the average speed being about 20 per cent. slower than normal. On the other hand when the same rats were injected with the same doses of quinine sulphate and the animals were exposed to light, the running time was in-

creased about 100 per cent. Again a number of the younger rats injected with 6 mgm. of quinine sulphate and kept in the dark showed practically no change in the running speed but made more mistakes than before injection (increase from 3 errors before injection to 10 after injection). These same rats injected with the same doses of quinine sulphate (6 mgm.) and exposed to light were "stalled," an expression used to indicate that the animals were completely lost in the maze, could not find their bearings, made innumerable mistakes and never reached the center. In the case of the larger rats an injection of 4 mgm. of quinine produced no change either in the running speed or the number of mistakes made by the rats when the animals were kept in the dark after injection. On the other hand the same animals injected with the same dose of the drug and exposed to light were 50 per cent. slower in their running time and showed a marked increase in the number of mistakes made.

The effects of quinidine were equally or perhaps even more striking than those with quinine. Thus, for instance, it was found that when the small rats, Series A, were injected with doses from 2 to 4 mgm. and were kept in the dark for fifteen minutes no change whatever was produced in the running time or the number of mistakes made by the animals. On the other hand the same doses of quinidine sulphate on exposure of the animals to light caused a slowing of about 140 per cent. in the running time and also an increase in the number of errors. A number of experiments made with doses of 6 mgm. in rats of Series A were even more striking. These animals when kept in the dark showed a slowing in the speed of about 120 per cent. as compared with the normal running time whereas the same animals injected with the same doses of the drug and exposed to light showed an increase in speed of 621 per cent. The difference between the sunlight and radiations of the quartz lamp were not very marked although the ultraviolet radiations of the lamp produced somewhat greater potentiation of the drug action. A comparative study of quinine and quinidine on the rats both in the dark and in light revealed another interesting feature. As a result of the analysis of all the data it was found that quinine was distinctly more toxic than its optic isomere, quinidine. This was evident after injections of both small or therapeutic doses and large or lethal doses of the drugs. The effect of smaller doses may be noted in the tables. Extremely toxic or lethal doses showed a similar difference in toxicity between the laevo-gyrous quinine and the dextro-gyrous quinidine, as may be illustrated by the following experiments.

Experiment A. June 8, 1922. Rat weighing 100 grams was injected intraperitonally with 20 mgm. of quinidine sulphate in 0.5 solutions and the animal was placed in a wire cage and exposed to direct sunlight. Five minutes after injection the animal's breathing became shallow and the rat appeared to be very sick. Ten minutes after injection convulsions appeared. Twenty minutes after injection the animal was in deep coma and thirty-five minutes after injection the animal was dead.

Experiment B. Rat weighing 100 grams, injected intraperitionally with 20 mgm. of quinidine sulphate in 0.5 solution and placed in a dark cupboard. Forty minutes after injection the animal is still alive and running about. One hundred and ten minutes after injection the animal is depressed but sitting up and not very sick. The animal was left in the dark cupboard and on the following day was alive and apparently recovered.

Exactly similar experiments were made on rats with solutions of quinine sulphate and a similar difference in toxicity on exposure to light and darkness, re-

spectively, was noted. The lethal dose of quinine sulphate, however, was smaller than that of quinidine. As a result of numerous experiments concerning the lethal dose of the two alkaloids on rats it was found that 20 mgm. of quinidine sulphate per 100 grams weight of rat were fatal to the animal within one hour of the time of injection. In the case of quinine, 15 mgm. of the sulphate per 100 grams of rat were sufficient to produce the same results.

DISCUSSION.

A careful study of all the data obtained, both those expressed in the tables together with notes on the general behavior of the animals, reveals clearly that light plays an important rôle in relation to the pharmacological activity of solutions of quinine and quinidine sulphates for rats. Injections of these drugs were followed by depression and toxic signs much more rapidly and after smaller doses when the animals were exposed to sunlight or quartz lamp rays than when they were kept in the dark. Such waves of light penetrate sufficiently far through the surface of the body to produce an activation of the drugs present in the circulating blood. Such a result is not altogether surprising inasmuch as it has been found by Stübel and other investigators (15) that ultraviolet waves of light do penetrate through various tissues to a greater or less extent. The results obtained with quinine and quinidine in the present study are even more convincing in view of the fact that a previous investigation concerning the effects of sunlight and ultraviolet light on the behavior of normal rats indicated that if anything, such a radiation is followed by a stimulation and not a depression as indicated by the behavior of the animals in the maze. The difference in toxicity as between light and darkness of the two alkaloidal salts studied was noted both after small or what may be called therapeutic doses of the drugs as well as after extremely large or lethal doses of the same.

It is also of interest to note the difference in the relative toxicity of quinine and quinidine, which are chemically isomeric and differ only in respect to the configuration of molecules, quinine being laevo-gyrous while quinidine is dextro-gyrous. Here as in the case of other optic isomers it is interesting to find that the laevo-gyrous variety is the more toxic one. This difference in the toxicity between quinine and quinidine for animals applies also to the relative toxicity for plant protoplasm as has been pointed out by one of the authors elsewhere (16). The influence of light on the activity of quinine and quinidine as noted by the authors for frogs and rats applies also in a measure to their pharmacological action on isolated organs. Experiments are in progress with a view to ascertain the effects of light on the action of quinine and quinidine on the isolated heart and the results so far obtained already warrant the statement that both quinine and quinidine on exposure to light radiation produce more rapid and more poisonous effect on the action of the heart. In view of the recent introduction of quinidine into the therapy of certain heart conditions these findings ought to be borne in mind. It is not too much to assume that exposure of white patients to direct sunlight and possibly to ultraviolet radiation may intensify the therapeutic effects of small doses of quinidine.

SUMMARY.

The effect of light on the behavior of normal rats and of rats injected with solutions of quinine and quinidine sulphates was studied in respect to their behavior in the circular maze. It was found that:

1. Sunlight and ultraviolet radiations from a quartz lamp produce either no effect or a stimulating effect on normal rats.

2. The pharmacological activity of quinine and quinidine sulphates was greater in animals exposed to light than those kept in darkness.

3. The absolute lethal doses of quinine and quinidine were smaller for animals kept in light than those kept in darkness.

4. As between the two optic isomers quinine and quinidine, the laevo-gyrous variety (quinine) was more toxic than the dextro-gyrous variety (quinidine).

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SUPRARENIN (SYNTHETIC EPINEPHRIN).*

BY CASIMIR FUNK, HARRY E. DUBIN AND LOUIS FREEDMAN.

One of the most notable achievements of modern chemistry and science is the synthesis of the naturally occurring alkaloid, epinephrin. This drug, which is probably the most powerful physiologic substance known, is found in the medulla of the suprarenal gland in all animals and was first obtained in an impure condition in 1897 by Abel and Crawford. It was finally purified by Takamine in 1901, and its chemical structure was definitely established in 1903. From then on, efforts were directed toward its synthesis in the laboratory, this being accomplished independently by several workers a year later.

The synthesis of this highly important pharmaceutical was not considered complete, however, until the racemic form, in which it is obtained when synthesized, was resolved into its two optically active components. This was accomplished several years later by Stolz and his co-workers by means of fractional crystallization of the bitartrates, and also by the action of a fungus—*penicillium glaucum*.

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The development of the synthetic process on an economic basis was necessarily slow and tedious. The process is a complicated one as it consists of about nine different chemical reactions, involving the isolation and purification of each intermediate. It took several years of painstaking research before we were able to finally develop in our laboratories an economic process which would give us a pure and uniform substance, absolutely identical with the natural product.

The starting material used in this process is pyrocatechol, which is monohydroxyphenol. By the action of chloracetyl chloride this compound is converted into chloraceto-pyrocatechol. This is then treated with methylamine to form methylamino aceto pyrocatechol, a product having distinct pressor action and known as "adrenalone." This product, on subjection to reduction, yields racemic suprarenin (synthetic epinephrin). Racemic suprarenin consists of a uniform, optically inactive mixture, being 50% laevo suprarenin and 50% dextro suprarenin. The highly physiologically active laevo component is then separated from its optical isomer by converting the racemic compound into the bitartrate, and removing the *l*-suprarenin bitartrate by fractional crystallization and purifying it by subsequent recrystallization. In this way the laevo compound is obtained absolutely free of the dextro component.

Ever since racemic suprarenin was resolved into its optically active components there has been considerable controversy over the relative physiologic activity of these two stereo-isomeric compounds. Although investigators in this field are in accord with the fact that the laevo variety is many times more active physiologically than the dextro variety, there seems to be marked disagreement as regards their relative activity.

Cushing, and Abderhalden and Mueller have determined that the optically active laevo component of racemic suprarenin is the main carrier of the physiologic effect, while the dextro component possesses only one-fifteenth the effect of the natural *l*-epinephrin. Recent articles of French authors, however, tend to obscure the results of the previous investigators. Richaud, particularly, concludes from his tests on blood pressure that *l*-suprarenin is but a few per cent. more effective than the racemic form so that therapeutically the latter is practically equivalent to the natural product.

Fromherz, however, disagrees with Richaud in the interpretation of his results, although he states that Richaud's experimental data do not differ much from those of Abderhalden and Mueller.

Fromherz, in a very recent publication, gave the results of his observations on the increase in blood pressure in rabbits by injections of pure *d*-suprarenin. This antipode was obtained by splitting the racemic base with *d*-tartaric acid, removing the *l*-suprarenin *d*-bitartrate and then recovering the *d*-component from the mother liquor. The *d*-suprarenin was once again converted into its bitartrate, purified by recrystallization and the base finally obtained by precipitation with ammonia. From a series of curves which he made, Fromherz found that 0.3 mg. of *d*-suprarenin is a little less effective than 0.01 mg. *l*-suprarenin, and that 0.5 mg. *d*-suprarenin is approximately equal to 0.015 mg. *l*-suprarenin. From these observations he drew the conclusion that the *d*-component is only 1/30 to 1/40 as effective as *l*-suprarenin, and that therefore racemic suprarenin possesses only 51 to 52 per cent. of the effectiveness of the natural or the synthetic *l*-suprarenin.

The purity of the *l*-suprarenin can be tested according to three different methods, any one of which, when carefully controlled, gives an exact indication of the purity of suprarenin whether it be the natural or the synthetic product.

The three methods available for the standardization of the drug are the chemical, physical and physiologic.

The chemical tests include, first, the various color reactions which are peculiar to the type of compounds of which epinephrin is a member. Second, the chemical analysis by means of which the carbon, hydrogen, and nitrogen content are determined. This latter method of identification, however, is unnecessary and is seldom used.

The physical constants include melting point and optical rotation. Any sample of *l*-epinephrin, synthetic or natural, which gives the theoretical melting point of 212° C., or in the form of its bitartrate melts at 149° C., and whose hydrochloride solution rotates the plane of polarized light to the left the theoretic number of degrees (—50°), must also exhibit 100% physiologic activity. A lowering of the respective melting points or an increase in the degree of polarization indicates at once that the particular sample under investigation contains some impurities or some racemic and less active epinephrin.

The physiologic test is based upon the ability of a given amount of epinephrin to produce a definite increase in blood pressure, as compared with the rise in blood pressure obtained with a known 100% standard. The purity of this 100% standard can, however, be determined only by physico-chemical means. The physiologic test is of necessity an arbitrary one as its results are dependent considerably on the animal and method used and the skill of the worker; and these tests have been known to vary, even on duplicate samples.

On the other hand, the only unarbitrary and constant method in assaying epinephrin, natural or synthetic, is by chemico-physical means. Chemical and physical tests not only show the absolute quantity of the laevo epinephrin but also the degree of purity of this substance, while the polarimetric readings show the optical activity which should check with the other tests. A minute quantity of the less active dextro-rotatory variety, admixed with the highly active laevo isomer, has a marked effect on both the melting point and optical rotation.

All optically active substances, when synthesized, occur in the optically neutral racemic form consisting of equal amounts of the active components which neutralize each other. These components are then separated by combining them with an optically active acid, if a base, and an optically active base, if an acid, In the case of suprarenin, to obtain the laevo form, a dextro acid such as dextro tartaric acid is used.

The compound obtained is then *l*-suprarenin-*d*-bitartrate from which the laevo active base can be obtained by precipitation with ammonia. This synthetic laevo compound is identical in every respect with the purified natural epinephrin obtained from the suprarenal glands.

Suprarenin or synthetic epinephrin is in many ways to be preferred to the natural product. The synthesis, being carefully controlled at each step and involving the use of chemicals of unvarying composition, yields a pure, stable, and uniform product exhibiting more than the required degree of physiologic activity. Natural epinephrin, on the other hand, being made from enormous quantities of

suprarenal glands of varied strength and origin, is likely to contain impurities that are inherent in the process of manufacture, and is also likely to undergo partial racemization with a consequent decrease in both optical and physiologic activity.

Aside from this, scientific progress has been along the lines of synthesis. No sooner has a natural product of therapeutic value been discovered, than attempts are made to isolate it to determine its chemical constitution and ultimately to synthesize it. We have such examples in suprarenin and thyroxin (the active principle of the thyroid gland). The isolation and synthesis of insulin would no doubt create a furore in the scientific world and would be a boon to humanity. Once the synthesis of a natural product is achieved, the medical and pharmaceutical professions are assured of a uniformly pure product which may be prepared at a price low enough to permit of its more general use.

In spite of the large amount of work which has been done on epinephrin, considerable progress can still be made in the field of research. Available data are still lacking regarding the exact relative physiologic activity of the two optically active components of racemic suprarenin. Also the field is still open for the synthesis of new derivatives which may be equal or superior to suprarenin and still be easy of manufacture.

We have recently described the preparation in our laboratory of three new derivatives of suprarenin which have unusual chemical interest and which may have valuable, physiologic properties. These new compounds which are at present under investigation are ethers of suprarenin in which the secondary alcoholic group is involved. Further research work is now being carried out in our laboratory on the chemistry of suprarenin and various compounds related to it.

BIOCHEMICAL DEPARTMENT
RESEARCH DIVISION
H. A. METZ LABORATORIES, INC.,
NEW YORK, N. Y.

THE ALKALINITY OF MAGMA MAGNESIÆ AS DETERMINED BY THE HYDROGEN ELECTRODE.*

BY R. B. SMITH AND P. M. GIESY.

Since the U. S. P. method for the determination of free caustic in Milk of Magnesia does not always appear to give reliable results, it was decided to investigate the p_H of Milk of Magnesia of various degrees of purity with a view to finding some more reliable method which would give reproducible results under all conditions.

Milk of Magnesia which had been thoroughly washed but which still contained an excess of water was found to have a p_H of 10.33. After slightly diluting the milk with water, the magnesium hydroxide was washed four times by decantation, centrifuging each time to effect settling. After the fourth washing it was diluted and boiled and allowed to cool in a stoppered flask. The p_H of this material was found to be 10.37.

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* Scientific Section, A. Ph. A., Asheville meeting, 1923.

The above material was again washed four times in the same manner except that it was diluted until with each washing about twenty times as much water was separated as there was solid which remained in the tube. After the last washing this material was boiled and cooled; the p_H was found to be 10.51.

The results of these tests were as follows:

Before washing	$p_H = 10.33$
After four washings	$p_H = 10.37$
After eight washings	$p_H = 10.51$

Twenty-five cc. of 45% NaOH was added to 350 cc. of the original material and the p_H determined to be 13.31.

This material was diluted with three volumes of water and washed twice by centrifuging, the solid material being removed from the tube after each centrifuging in order to thoroughly mix it with the next wash water. The washing was continued until the material gave a constant p_H.

The results were as follows:

	p_H
Before washing	13.31
After 2 washings	11.52
After 4 washings	10.49
After 6 washings	10.23
After 7 washings	10.20

The p_H of Milk of Magnesia can be calculated quite closely from the solubility and solubility product of Magnesium Hydroxide.

The p_H of a concentrated Milk of Magnesia was determined to be 9.96. To 30 cc of this solution three drops of concentrated HCl was added. This is equivalent to about 0.15 cc. The p_H was then lowered to 9.32. Concentrated HCl is about 13 normal so that the molar concentration of $MgCl_2$ would be

$$\frac{0.15 \times 13}{2 \times 30} = 0.0325$$

Since the p_H value of this solution containing three drops of concentrated HCl was 9.32, its p_{OH} was $14.12 - 9.32 = 4.80$. This is equivalent to an OH concentration of 1.60×10^{-5}. Calculating the solubility product we have,

$$K = 0.03 \times (1.60 \times 10^{-5})^2 = 7.68 \times 10^{-12}$$

In a solution of pure $Mg(OH)_2$ the concentration of the OH ion will be twice that of the Mg ion, or if x = concentration of the Mg ion, K will equal $4\,x^3$

$$x^3 = \frac{7.68 \times 10^{-12}}{4} = 1.92 \times 10^{-12}$$

$$x = 1.243 \times 10^{-4} = 0.1243 \times 10^{-3}$$

The concentration of the OH ion will be twice this value or 0.2486×10^{-3}. This corresponds to a p_{OH} of 3.61 or a p_H of 10.51.

Since the milk used had an original p_H of 9.96, it evidently contained some Mg salt. If the amount of this is calculated in a similar way, and allowed for in the calculation of the p_H of pure magnesium hydroxide suspension, the final value is raised only 0.01 of a p_H unit, to 10.52.

The p_H values obtained above were obtained electrometrically using a saturated KCl calomel electrode.

There is very good agreement between the p_H as calculated from the solubility product and the p_H of purified Milk of Magnesia which had originally contained a slight excess of magnesium salt. We are unable to explain the value obtained by washing out an excess of caustic soda and this matter is being further investigated.

The electrometric method is more delicate than the U. S. P. titration method for free caustic, and we believe that the U. S. P. standard should be based on the p_H of the Milk of Magnesia rather than on any titration value.

LABORATORY OF E. R. SQUIBB & SONS,
NEW YORK.

THE STANDARDIZATION AND STABILIZATION OF ACONITE PREPARATIONS.*

PAPER I.

BY E. E. SWANSON AND A. L. WALTERS.

I. Introduction.
II. Method of Assay.
III. Comparison between the Chemical and Biological Assays.
IV. Seasonal Variation.
V. Deterioration Tests.
  A. Tincture of Aconite U. S. P.
  B. Fluidextract of Aconite U. S. P.
  C. Aconitine Crystals.
  D. Experimental Preparations.
VI. Conclusions.

I. INTRODUCTION.

The standardization of aconite preparations by the present official chemical method U. S. P. IX Revision has been found to be unreliable. Rudolph and Cole,[1] Robinson,[2] Haskell[3,4,5], Haskell and Zirkle,[6] and others found considerable variation and inconsistency in the potency of aconite preparations, when assayed chemically and biologically. Aconite contains several alkaloids of variable pharmacological action and toxicity, but similar in chemical properties toward solvents and precipitants. Therefore the chemical method indicates the total ether-soluble alkaloids, including aconitine, which is regarded pharmacologically and therapeutically as the important alkaloid. Considering aconitine as the active therapeutic principle of aconite, and noting its high toxicity in comparison to the other alkaloids, particularly benzoylaconine and aconine, it seems to the writers that a lethal dose assay would furnish a method for testing the therapeutic efficiency of aconite, and that aconitine crystals could be used as a standard.

II. METHOD OF ASSAY.

Such a method has been developed by the Scientific Section of the American Drug Manufacturers' Association in which the writers have had a part. The method and its results have been published by Dohme,[7] Chairman Committee on Aconite of the Scientific Section of the American Drug Manufacturers' Association.

* Scientific Section, A. Ph. A., Asheville meeting, 1923.

This Committee sent out a sample of crystalline aconitine and a sample of Fluidextract of Aconite U. S. P. to the biochemists of five different laboratories. The object of this was to determine whether the results of a biochemical method would be sufficiently accurate and consistent in the various laboratories to justify its use as a method of assay.

Following are the results of this work:

	Aconitine cryst. per gram weight of guinea pig.	Fluidextract of aconite root.
Sharp & Dohme	0.0000000625	0.0000300
Upjohn	0.0000000600	0.0000266
Parke, Davis & Co	0.0000000600	0.0000300
Eli Lilly & Co	0.0000000625	0.0000275
Norwich Pharmacal Co	0.0000000510	0.0000360

The method of assay used by the various laboratories is as follows:

To assay the aconitine, dissolve 0.1 Gm. of the alkaloid in 100 cc of 2% acetic acid. Dilute 1 cc of this solution to 10 cc with distilled water giving a (1–10,000) solution of aconitine. Guinea pigs of 300 Gm. to 400 Gm. weight are used. Calculate the total dose required for each pig and dilute with normal saline solution to a total of 1.5 cc. This is injected into the subcutaneous tissue of the abdomen. The lethal dose is determined as the smallest amount which would kill within 24 hrs.

III. COMPARISON OF BIOCHEMICAL AND CHEMICAL ASSAYS.

The following data give a comparison between the chemical and biological assays of aconite root, fluidextract and tincture.

Aconite root.		Fluidextract aconite root.		Tincture aconite root.	
Biological assay standard 0.000040.	Chemical assay standard 0.50.	Biological assay standard 0.000040.	Chemical assay standard 0.50.	Biological assay standard 0.00040.	Chemical assay standard 0.050.
0.000030	0.50	0.000030	0.53	0.00027	0.052
0.000045	0.42	0.000040	0.46	0.00040	0.051
0.000035	0.37	0.000030	0.47	0.00035	0.048
0.000040	0.36	0.000030	0.50	0.00030	0.051
0.000030	0.43	0.000065	0.48	0.00025	0.048
0.000042	0.36	0.000025	0.47	0.00045	0.050
0.000040	0.67	0.000040	0.52	0.00045	0.065
0.000050	0.40	0.000040	0.54	0.00075	0.050
		0.000025	0.50	0.00040	0.055
Av. 0.000039	Av. 0.44	0.000030	0.47	0.00035	0.052
		0.000025	0.53	0.00045	0.049
		0.000032	0.53	0.00040	0.056
		0.000028	0.53	0.00050	0.047
		0.000028	0.53	0.00035	0.052
				0.00035	0.049
		Av. 0.000033	Av. 0.50	0.00035	0.050
				0.00030	0.049
				0.00020	0.051
				0.00040	0.055
				Av. 0.00038	Av. 0.051

(Guinea pigs weighed 300 Gm. to 400 Gm.)

The above data show a distinct inconsistency of the two methods.

For the fluidextract of aconite, dilute 1 cc to 10 cc with 50% alcohol. The same weight pigs are used and the calculations and dilutions with saline solution are the same as above.

For the tincture of aconite no dilutions are made except when each calculated dose is diluted with saline solution to 1.5 cc.

This biochemical method has been used in all the experiments here presented.

IV. SEASONAL VARIATION.

As in other biochemical testing, seasonal variation or resistance is considered an important factor in standardizing aconite preparations. To determine the importance of this factor, fresh solutions of the same sample of aconitine crystals were prepared each month for a year and tested. Results follow:

Date.	Lethal dose. Gm. per Gm. wt. of pig.
11–18–20	0.0000000625
12–19–20	0.000000060
1–11–21	0.000000065
2–22–21	0.000000070
3–23–21	0.000000065
4–5–21	0.0000000625
5–23–21	0.000000065
6–20–21	0.000000060
7–20–21	0.000000055
8–23–21	0.000000065
9–23–21	0.000000065
10–18–21	0.0000000575
11–20–21	0.000000060
2–20–22	0.000000065
1–5–23	0.000000050

(The pigs used 1–5–23 weighed only 250 Gm. to 300 Gm.)

These results show that the resistance of guinea pigs does not vary greatly, providing a standard weight of pig is used, and new lots of pigs are first kept in the laboratory for a month, so as to eliminate all source of error that may be due to diet and surroundings.

V. DETERIORATION OF ACONITE PREPARATIONS.

Even though the biochemical method gives a more accurate and efficient method of assay than the chemical one, the question of deterioration still is a problem of some concern. The deterioration of aconite preparations cannot be definitely determined until a satisfactory method of assay has been developed. However, it has long been known that there is a deterioration in the U. S. P. tincture and fluidextract of aconite, and the following data are a part of the experiments on deterioration.

A. Tincture of Aconite U. S. P.

Two samples of Tincture of Aconite U. S. P. (one assayed high and the other low when made).

Tincture.	Made.	Bio-assay.	Chem. assay.	Bio-assay 2–15–20.
557726	1–26–17	0.00020	0.057	Less than 13%
165850	11–14–18	0.00075	0.030	Less than 10% (no dose determined)

B. Fluidextract Aconite U. S. P.

Three samples of Fluidextract Aconite U. S. P. (one assayed high and two low).

Fluidextract.	Made.	Bio-assay.	Chem. assay.	Bio-assay 2-15-20.	Per cent. original bio-assay.
No. 618247	1-26-19	0.000065	0.48	0.000080	80
No. 600681	4-23-18	0.000025	0.47	0.000090	29
No. 571499	4-10-17	0.000025	0.56	0.000150	17

The above data show a very pronounced deterioration of the fluidextract and almost total loss of potency of the tincture in 1 to 3 years, and that the loss is gradual from year to year.

C. Aconitine Crystals.

The alkaloids of aconite are known to be rather unstable and easily hydrolyzed in dilute alcohol. Assuming that the salts of these alkaloids in solution are more stable and that the presence of some acid in the menstruum might prevent decomposition or deterioration, the writers made tests using the alkaloid aconitine, as follows:

Aging tests—aconitine crystals.

1. Prepared in ampuls on 11-17-20 a solution of aconitine (1-1000) in 70% alcohol or the same menstruum as the official tincture and fluidextract of aconite. When assayed was diluted (1-10), finishing (1-10,000).

DATA:

11-18-20 assayed 0.00000010 Gm. per Gm. weight
11-20-21 assayed 0.0000010 Gm. per Gm. weight
1-5-23 assayed 0.000010 Gm. per Gm. weight

Distinct loss in activity of the solution.

NOTE.—This assays only 60% as much when made as when 2% acetic acid is added.

2. Prepared in ampuls a solution of aconitine (1-1000) in 70% alcohol plus 2% acetic acid. This solution when injected was diluted (1-10), finishing (1-10,000).

DATA:

11-18-20 assayed 0.0000000625 Gm. per Gm. weight
11-20-21 assayed 0.0000000625 Gm. per Gm. weight
3-20-22 assayed 0.0000000575 Gm. per Gm. weight
1-5-23 assayed 0.000000055 Gm. per Gm. weight

(Pigs used 1-5-23 weighed only 250 Gm. to 300 Gm.)

There was no deterioration in three years.

3. Prepared in ampuls a solution of aconitine (1-1000) in 2% acetic acid solution. This solution when tested was diluted (1-10) making a (1-10,000) solution.

DATA:

11-18-20 assayed 0.0000000625 Gm. per Gm. weight
5-23-21 assayed 0.0000000575 Gm. per Gm. weight
10-18-21 assayed 0.0000000625 Gm. per Gm. weight
3-20-22 assayed 0.000000055 Gm. per Gm. weight
1-5-23 assayed 0.000000045 Gm. per Gm. weight

(Pigs used 1-5-23 weighed only 250 Gm. to 300 Gm.)

There was no deterioration in three years.

D. Experimental Preparations.

Deterioration experiments were made on tinctures of aconite manufactured from two lots of drug which assayed as follows:

Aconite Root No. 17048—8-18-20 assayed 0.000030 Gm.
Aconite Root No. 22040—9-27-20 assayed 0.000015 Gm.

Prepared three tinctures from each lot of drug as follows:

Series A.

Prepared on 11-20-20 three tinctures from drug No. 17048.

Tincture No. 1.—Menstruum 70% alcohol U. S. P.
Tincture No. 2.—Menstruum 70% alcohol, then 2% acetic acid added after percolation.
Tincture No. 3.—Menstruum 70% alcohol plus 2% acetic acid.

Series B.

Prepared 11-20-20 three tinctures from drug No. 20240.

Tincture No. 4.—Menstruum 70% alcohol U. S. P.
Tincture No. 5.—Menstruum 70% alcohol, 2% acetic acid added after percolation.
Tincture No. 6.—Menstruum 70% alcohol plus 2% acetic acid.

Series C.

Prepared 6-12-21 two tinctures.

Tincture No. 7.—Menstruum 70% alcohol U. S. P.
Tincture No. 8.—Menstruum 70% alcohol and 0.1% HCl added after percolation.

Following are the results of the experiments:

SERIES A.

Tincture No.	Date.	Bio-assay.	Chem. assay.	Standard aconitine crystals.	Corrected dose.	Per cent. bio-standard.	Per cent. chem. standard.
1	11-20-20	0.000275	0.042	0.0000000625	0.00022	181	84
2	11-20-20	0.000275	0.042	0.0000000625	0.00022	181	84
3	11-20-20	0.00030	0.041	0.0000000625	0.00024	166	82
1	4-25-21	0.00055	0.0375	0.0000000625	0.00044	90	75
2	4-25-21	0.000325	0.0416	0.0000000625	0.00026	154	83.2
3	4-25-21	0.00030	0.0458	0.0000000625	0.00024	166	..
1	11-28-21	0.0035	0.037	0.000000060	0.0030	13	74
2	11-28-21	0.000575	0.0416	0.000000060	0.00048	83	83
3	11-28-21	0.0030	0.0458	0.000000060	0.00025	160	91.6
1	12-25-22	.....	....	0.000000050	.....	..	..
2	12-25-22	0.000425	....	0.000000050	0.000425	93	..
3	12-25-22	0.000275	....	0.000000050	0.000275	166	..

SERIES B.

4	11-20-20	0.00015	0.066	0.0000000625	0.00012	333	132
5	11-20-20	0.00015	0.066	0.0000000625	0.00012	333	132
6	11-20-20	0.00014	0.079	0.0000000625	0.000112	335	158
4	4-25-21	0.00020	0.66	0.0000000625	0.00016	280	132
5	4-25-21	0.00015	0.72	0.0000000625	0.00012	333	144
6	4-25-21	0.00014	0.078	0.0000000625	0.000112	335	156
4	11-18-21	0.0011	0.0664	0.000000060	0.000916	43.6	132.8
5	11-18-21	0.00018	0.072	0.000000060	0.00015	266	144
6	11-18-21	0.00015	0.078	0.000000060	0.000125	330	156
4	12-25-22	.....	....	0.000000050	.....	...	..
5	12-25-22	0.00015	....	0.000000050	0.00015	266	..
6	12-25-22	0.00012	....	0.000000050	0.00012	333	..

SERIES C.

Tincture No.	Date.	Bio-assay.	Chem. assay.	Standard aconitine crystals.	Corrected dose.	Per cent. bio.-standard.	Per cent. chem. standard.
7	6–12–21	0.000375	0.050	0.000000060	0.00312	128	100
8	6–12–21	0.000375	0.050	0.000000060	0.000312	128	100
7	11–18–21	0.0040	...	0.000000060	0.00333	12	..
8	11–18–21	0.00045	...	0.000000060	0.000375	106	..
7	10–12–22	.....	...	0.0000000575	.....	..	..
8	10–12–22	0.00041	...	0.0000000575	0.00035	114	..
7	12–25–22	.....	...	0.000000050	.....	..	..
8	12–25–22	0.00030	...	0.000000050	0.00035	114	..

To briefly summarize the above tables:

The tinctures Nos. 1, 4 and 7 prepared according to the United States Pharmacopœia shows a very rapid loss of potency in one year's time, as follows:

Tincture No.	Date.	Bio-assay. Per cent.	Chem. assay. Per cent.	Date.	Bio-assay. Per cent.	Chem. assay Per cent.
1	11–20–20	181	84	11–28–21	13	74
4	11–20–20	333	132	11–18–21	43.6	132.8
7	6–12–21	100	100	11–18–21	12	100

The chemical assay shows no loss of activity compared to the bio-assay.

The tinctures Nos. 2, 5 and 8 prepared according to the United States Pharmacopœia with 2% acetic acid or 0.1% hydrochloric acid added to the percolate or finished percolation, show some loss in potency, but not equal to the above experiments.

Tincture No.	Date.	Bio-assay. Per cent.	Chem. assay. Per cent.	Date.	Bio-assay. Per cent.	Chem. assay. Per cent.
3	11–20–20	181	84	12–25–22	93	..
5	11–20–20	333	132	12–25–22	266	..
8	16–12–21	128	100	12–25–22	114	..

These experiments show that the addition of acid to the percolate or finished percolate partially stabilizes the potency of the tincture.

Tinctures Nos. 3 and 6 prepared with a menstruum of 70% alcohol and 2% acetic acid completely prevents deterioration:

Tincture No.	Date.	Bio-assay. Per cent.	Chem. assay. Per cent.	Date.	Bio-assay. Per cent.	Chem. assay. Per cent.
3	11–20–20	166	82	12–25–22	166	..
6	11–20–20	335	158	12–25–22	333	..

No loss in activity in two years' time, and seems to permanently stabilize the potency of aconite tincture and fluidextract.

VI. CONCLUSIONS.

To briefly summarize the results obtained by the chemical method and guinea pig lethal dose method of assaying aconite and its preparations, it may be said that the chemical method is unreliable, and should be disregarded in the next revision of the U. S. P. The lethal dose assay has given much better results in the hands of various laboratories and technicians. The use of crystalline aconitine is a satisfactory standard when the same lot of crystals is used. The adoption of aconitine as a standard will necessitate a strict definition of the physical and chemical properties of such a standard.

The experiments reported on deterioration show conclusively that the deterioration of the tincture and fluidextract of aconite can be prevented by the addition of 2% acetic acid or 0.1% hydrochloric acid to the menstruum.

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A STUDY OF THE RELATIVE PRESERVATIVE VALUES OF GLYCERIN AND SUGAR SOLUTIONS IN CERTAIN OFFICIAL PREPARATIONS.

BY JOHN C. KRANTZ JR.

The question of preservation of medicinal salts with glycerin or sugar solutions has been the source of a large amount of investigation and intense study. The rapid deterioration of certain syrups, caused by either oxidation or hydrolysis, and the rapidity with which sucrose is inverted and often caramelized in certain galenicals is a constant source of annoyance to the pharmacist. The decomposition of practically all of the official syrups and solutions containing mineral substances may be divided into two classes: first, oxidation through atmospheric influence, and second, hydrolysis or decomposition caused by the ions of water.

PART I.

A. SYRUP OF FERROUS IODIDE.

As one of the type of preparations which readily decomposes under atmospheric influence, Syrup of Ferrous Iodide may be cited. Accordingly a syrup was prepared by the pharmacopœial process omitting the dilute hypophosphorous acid. At different periods after preparing the amount of invert sugar present was estimated by decomposing a small accurately weighed quantity of the syrup with sodium carbonate solution, removing the precipitated ferrous carbonate by filtration and estimating the invert sugar in the filtrate gravimetrically with Fehling's solution.

5 days showed.....	6.5% invert sugar
15 days showed.....	7.5% invert sugar
30 days showed.....	8.8% invert sugar
75 days showed.....	10.96% invert sugar

Another syrup was prepared including the dilute hypophosphorous acid and the following results show the inversion of the sucrose:

10 days showed.....	94.2%
20 days showed.....	96.2%

These results indicate that within a period of twenty days practically all of the sugar is inverted, whereas if the acid is omitted the degree of inversion is far less.

This is only what one would expect as it has been found that the rapidity of inversion is a function of the hydrogen ion concentration[1] and by the colorimetric method the official syrup showed a p_H 2.8–3.2, whereas with the acid omitted the p_H value was 5.2. In view of this rapidity of inversion of sucrose in the presence of the diluted hypophosphorous acid and subsequent caramelization caused by the reducing agent, the next step was to supply a preservative medium of equal value with syrup and yet not subject to deterioration. Certain investigators have suggested the use of glucose in this preparation and claim it to be a better preservative for ferrous iodide than sucrose. Accordingly four syrups were prepared with different amounts of chemically pure glucose and their resistance against oxidation was tested in the following manner:

Weigh 10 Gm. of the syrup and add 5 cc solution of hydrogen peroxide 0.3% accurately measured from a burette. Allow to stand for five minutes and titrate the liberated iodine with $N/10$ sodium thiosulphate solution. The following results show the amount of iodine liberated from the different syrups by 5 and 10 cc, respectively, of hydrogen peroxide:

	5 cc	10 cc
Syrup with pure sucrose.....	0.0306 Gm.	0.0679 Gm.
Syrup with 10% dextrose.....	0.0308 Gm.	0.0679 Gm.
Syrup with 20% dextrose.....	0.0297 Gm.	0.0673 Gm.
Syrup with 30% dextrose.....	0.0297 Gm.	0.0667 Gm.
Syrup with 40% dextrose.....	0.0297 Gm.	0.0679 Gm.

The foregoing results indicate that the amount of dextrose used has no effect upon the resistance against oxidation of the preparation and that sucrose is equally as good a preservative as dextrose. Experiments carried out in this laboratory, however, showed that commercial dextrose increased the resistance against oxidation, which was due to reducing impurities present.

The next step was to prepare ferrous iodide solutions in other viscous media with the aim of establishing a relationship between viscosity and resistance against oxidation, especially so far as glycerin and sucrose solutions are concerned. A solution was prepared by allowing iron and iodine to react in the presence of 15 cc of distilled water and brought to the boiling point; 5 Gm. of glycerin was added and the solution rapidly filtered, the filter and contents were washed with 15 cc of distilled water and the filtrate was made up to 100 Gm. with pure glycerin. Another solution was prepared in distilled water and by rapid manipulation was made up to weight without the liberation of iodine. A third solution was prepared containing 30 Gm. of pure acacia in 100 Gm. of solution. The resistance against oxidation was tested by the foregoing method and when 10 cc of solution of hydrogen peroxide 0.3% were used the following amounts of iodine were liberated:

Water Solution.....	0.1234 Gm.
Sucrose Solution.....	0.0679 Gm.
Glycerin Solution.....	0.0380 Gm.
Acacia Solution.....	0.0254 Gm.

The relative viscosities of the solutions were determined by the Pharmacopœia method at 20° C.

[1] Fales & Morrel, *Jour. Am. Chem. Soc.*, 44, 2071, 1922.

Water Solution.....	1
Sucrose Solution.....	1.8
Glycerin Solution.....	2.5
Acacia Solution.....	20.0

These results indicate that viscosity is a factor in determining the resistance against oxidation and thus the relative preservative power of different media. Generally speaking the greater the viscosity the greater the resistance against oxidation. It should be noticed that viscid glycerin medium although considerably lighter in density than the sucrose solution offers a much higher resistance against oxidation.

Carrying the study of the resistance offered by the glycerin and sucrose solutions further, the following experiment was carried out. Since oxidation may be considered as an increase in positive valence, which may be interpreted to mean the loss of electrons, the glycerin and sucrose solutions were subjected to the oxidizing influence of an anode. Ten cubic centimeters of each solution was placed separately in small porous crucibles and these in turn were immersed in an aqueous solution of ferrous iodide. Platinum anodes were placed in each crucible and after one hour the passage of a current of 2 volts and 0.25 ampere liberated the following amounts of iodine:

Glycerin Solution.....	0.0020 Gm.
Sucrose Solution.....	0.0049 Gm.

Turning our attention to the official syrup in order to estimate its resistance against oxidation and formulate a comparison, the following amounts of iodine were liberated when 10 cc of solution of hydrogen peroxide were used:

Pharmacopœial Syrup...	0.0395 Gm.
Glycerin Solution.....	0.0418 Gm.
Sucrose Solution.....	0.0617 Gm.

All of the results obtained indicate that glycerin is a better preservative for solutions of ferrous iodide than sugar and when used as a preservative in this preparation the use of diluted hypophosphorous acid is unnecessary. The writer was fortunate enough to obtain a solution of ferrous iodide in 40% glycerin by volume which had remained permanent in a flint glass bottle in diffused light for a period of nine years. The glycerin solution prepared in this laboratory remained unchanged for a period of five months (that is up to the time of writing) stored in a partially filled flint glass bottle in diffused daylight. Let us now consider an explanation for the superior preservative power of glycerin.

The specific gravity of Syrup of Ferrous Iodide is about 1.3 and consequently 1000 Gm., containing 575 Gm. of sugar, occupies a volume of 770 cc. The glycerin solution having a density of about 1.2 occupies a volume of about 833 cc per 1000 Gm. and contains 750 Gm. of glycerin in 1000 Gm. The sucrose solution contains 1.69 moles in 770 cc or 2.18 in a liter, and hence is 2.18 molar in respect to sugar. The glycerin solution contains 8.15 moles in 833 cc or 9.78 in a liter and is therefore 9.78 molar in respect to glycerin. From the colligative properties of solutions, *i. e.*, osmotic pressure, freezing-point depression and boiling-point elevation, it is well known that equal molar concentrations of different non-ionizing solutes produce equal osmotic pressures, freezing-point depressions and boiling-point elevations.

Since these properties are direct functions of the number of molecules present it is assumed that solutions of equal molar concentrations contain in equal volumes, the same number of molecules. From this reasoning we may assume that in this preparation in an equal volume the number of glycerin molecules is 4.48 times as great as the number of sucrose molecules, as this number expresses the ratio of their molar concentrations. The foregoing experiments indicate that the protection offered by these substances is not due to any inherent chemical reactivity of the medium, but likely due to the enclosure of the ferrous iodide molecules in envelopments of molecules of the protecting medium, resembling the protective colloids of acacia and gelatin in their protection of gold sols. It is then obvious that glycerin will exert a far greater protective influence than sucrose as it has 4.48 times as many molecules present to accomplish its purpose of molecular envelopment.

It is generally understood that viscosity is due to molecular friction and it follows then that in any solution having a great viscosity the molecules must be closer together than in one having a lesser viscosity. It seems reasonable to postulate that in a solution where the molecules were literally rubbing each other, the protective envelopment formed by these molecules would render the enclosed molecule far more impervious to atmospheric influences, than a coating of protective molecules which are relatively far apart. Thus glycerin solutions offer better protective coatings than sucrose solutions and consequently show a higher resistance against oxidation.

One other factor in the question of preservation that must be considered is the area of the surface of the preparation exposed to atmospheric influences. It was found that in the same medium the rapidity of oxidation of ferrous iodide was proportional to the area of the surface exposed to the atmosphere. We now have two factors that increase the resistance against oxidation, namely, increasing the number of molecules of the protective substance present, and increasing the viscosity of the medium; the factor accelerating oxidation is the increasing of the amount of surface exposed. Qualitatively this may be expressed by the following mathematical formulæ:

$$R \propto N$$

$$\text{and} \quad R \propto V$$

$$\text{and} \quad R \propto \frac{1}{S}$$

$$\text{then} \quad R \propto NV\frac{1}{S} \text{ or } \frac{NV}{S}$$

where R is resistance against oxidation, V the viscosity, N the number of molecules of protecting medium present, and S the area of the surface exposed.

It is doubtful whether this formula could be used practically to calculate the actual length of time a preparation would remain permanent, as the molarity and viscosity of different media show no constant variation. Nevertheless in a qualitative manner this expression points out the relationship between the permanence of ferrous iodide solutions and the factors controlling it.

CONCLUSIONS.

1. Inversion and caramelization make sucrose solutions quite unsuited for a preservative for ferrous iodide.

2. Glycerin, on account of the opportunity of increasing the molarity, is more efficacious as a preservative and may be used in the preparation without its undergoing any objectional change and the diluted hypophosphorous acid may be deleted from the formula.

3. Resistance against oxidation or keeping qualities increases with the viscosity and molar concentration of the protective medium and varies inversely as the area of the surface exposed.

Let us turn our attention to some other official preparations and test the application of the foregoing principles in other solutions.

B. SYRUP OF HYDRIODIC ACID.

Three solutions of hydriodic acid were prepared in 57.5%, 72.5% and 87.5% by volume of glycerin along with the pharmacopœial syrup. After fifteen days the amount of invert sugar present in the official syrup was estimated in the following manner.

Accurately measure 2.5 cc of the solution and make up to 100 cc in a volumetric flask. Dilute 10 cc of this dilution, representing 0.25 cc of the syrup, with 50 cc of distilled water and estimate the invert sugar gravimetrically with Fehling's solution in the usual manner.

15 days..... 96.9% invert sugar

This experiment indicates that within a period of two weeks practically all of the sucrose present is inverted.

The resistance against oxidation and viscosity of the four preparations were determined, the former being carried out in the following manner.

In beakers of equal diameter place 10 cc of the solution to be tested. Float carefully over the surface 5 cc of solution of hydrogen peroxide 0.3% and allow diffusion into the viscous media for two hours, then titrate the iodine liberated with $N/10$ sodium thiosulphate solution. The following amounts of iodine were liberated.

Official Syrup	0.0343 Gm.
Glycerin Solution 57.5%	0.0317 Gm.
Glycerin Solution 72.5%	0.0254 Gm.
Glycerin Solution 87.5%	0.0254 Gm.

Relative Viscosities at	20° C.
Solution in Water	1.0° C.
Official Syrup	1.1° C.
Glycerin Solution 57.5%	1.25° C.
Glycerin Solution 72.5%	1.5° C.
Glycerin Solution 87.5%	3.0° C.

Let us now consider the molarity of the sucrose in the official syrup and compare it with the molar concentration of the 72.5% glycerin solution at which concentration the resistance against oxidation seemed to reach a maximum. The pharmacopœial preparation contains 488.75 Gm. of sucrose in a liter, which is 1.42 molar; the glycerin solution contains 906.25 Gm. in a liter, which is 9.85 molar. From

the proposed theory we would have anticipated a greater resistance against oxidation power by the glycerin solution than by the official syrup.

CONCLUSION.

1. A glycerite of hydriodic acid containing 72.5% by volume of glycerin yields an excellent preparation which does not readily deteriorate. In this laboratory it has remained permanent for five months (that is, up to the time of writing).

2. The qualitative application of the general expression proposed under syrup ferrous iodide seems applicable to this preparation, *i. e.*,

$$R \propto \frac{NV}{S}$$

C. MASS OF FERROUS CARBONATE.

In the preparation of Mass of Ferrous Carbonate a weak syrup is used to wash the freshly precipitated ferrous carbonate free from sodium sulphate, to prevent the oxidation of the iron salt. Twenty-five per cent. by weight of sugar is added to the ferrous carbonate before evaporation to the required weight is begun. Extending the theory of molecular envelopment and protection against oxidation to this preparation, three masses were carefully prepared by the pharmacopœial process from an uneffloresced sample of ferrous sulphate. Three other samples were prepared using a dilute glycerin solution in place of the syrup and 25% by weight of glycerin in the finished preparation in place of the sugar prescribed by the official formula. Conditions in each series of preparations were made alike as far as possible and the two types of masses compared as for consistency and permanency. The glycerin mass naturally retains its soft consistency indefinitely whereas it is well known that the official mass becomes very hard and dry in a comparatively short time. Immediately after preparation an average of three assays of the Pharmacopœia masses showed 37.61% and those made with glycerin showed an average of 38.58%. After thirty days' exposure to the atmosphere there was practically no greater change in one type of mass than in another.

CONCLUSION.

1. Glycerin again, because of its higher molar concentration, offers a better protection for ferrous carbonate; the glycerin mass also retains its soft consistency for a longer period of time.

D. SYRUP OF AMMONIUM HYPOPHOSPHITE.

Carrying this discussion to the National Formulary preparation of Syrup of Ammonium Hypophosphite some interesting results were obtained. The N. F. syrup contains 10% by volume of glycerin and about 75% of official syrup. Accordingly an N. F. syrup was prepared along with one solution of the salt in 75% syrup, another in 75% glycerin and one in 50% glycerin by volume. The resistance against oxidation of these four products was tested in the following manner.

Place in beakers of equal diameter 10 cc of each of the solutions to be tested. Float carefully over the surface 15 cc solution of hydrogen peroxide solution 3% and allow to stand for forty-eight hours. Add 25 cc of magnesia mixture and warm

the solution to 60° C. or until the precipitate of magnesium ammonium phosphate granulates, and set aside for one-half hour. Transfer the precipitate to a Gooch, ignite and weigh as magnesium pyrophosphate. The following results express the amount of magnesium pyrophosphate obtained.

	Det. I.	Det. II.
The National Formulary Syrup...	0.0188 Gm.	0.0193 Gm.
The 75% Syrup Solution.....	0.0263 Gm.	0.0251 Gm.

In neither of the two solutions prepared with glycerin was there any precipitate formed until the solution had been heated considerably with the hydrogen peroxide. This would seem to indicate again that by increasing the molar concentration of the protective medium the diffusion of the oxidizing agent was practically prevented. The molar concentration of the 75% glycerin solution is 5.47 greater than the solution containing 75% syrup and 3.17 greater than that of the official syrup.

At 20° C. the following relative viscosities were found.

Water Solution.....	1.0
Glycerin Solution 50%.....	1.1
Syrup Solution 75%.....	1.2
Glycerin Solution 75%.....	1.5
N. F. Syrup.....	1.7

CONCLUSIONS.

1. A seventy-five per cent. solution by volume of glycerin furnishes an excellent medium for ammonium hypophosphite and naturally the disadvantages of inversion and caramelization are obviated.

2. The general relationship of $R \propto \frac{NV}{S}$ shows itself to be approximately true in these oxidations.

PART II.

Let us now consider two types of pharmaceuticals which undergo decomposition by hydrolysis.

A. SOLUTION OF IRON AND AMMONIUM ACETATE.

This solution decomposes due to the formation of basic ferric acetate through hydrolysis. From the standpoint of chemical equilibrium there are two opposing tendencies in operation continuously in this preparation, one the tendency of the hydroxyl ions of water to unite with ferric acetate and form the subsalt, and another the tendency of the hydrogen ions present to form the normal salt and water by union with the basic salt. The force causing the formation of the basic salt may be considered as the frequency of contact of the molecules of the normal salt with the hydroxyl ions of water and the insolubility of the subsalt thus removing it from the field of activity and destroying the opposing tendency.

In 1887 LeValley[1] suggested the use of glycerin in place of syrup in this preparation, because he found it to be a better preservative; later this modification was adopted by the Pharmacopœia. The questions then arise—is there any scientific

[1] *Druggists Circular*, 1887.

reason to propose, accounting for the superior preserving power of glycerin in this preparation, and why do these substances preserve the salt at all?

There is the possibility of combination between the basic iron salt and sugar or glycerin, probably due to the secondary valence of iron, preventing the precipitation of the salt. Then, too, the preservation may be colloidal in nature, these organic molecules peptizing the basic ferric acetate as soon as it is formed and thus keeping it in solution as a colloid.

The writer does not believe that the preservative power is due to any reactivity of the preserving medium, but is entirely due to the protection afforded by the sucrose or glycerin molecules against the attacks of the hydroxyl ions of water. The greater number of molecules of protective substance present the more impervious will be their envelopment of protection against the hydroxyl ions and consequently there is a longer period of time required for the formation of enough basic ferric acetate to exceed its solubility product and thus to precipitate. Applying the assumption of the kinetic theory, that the speed of a chemical reaction is proportional to the number of collisions between the reactive particles of each sort, the length of time of permanency of this preparation is then proportional to the efficiency of the substance used in preventing these collisions of particles. Viscosity,[1] which some have assumed to be a symptom of inertia in the medium, affecting anything happening in it does not affect to any appreciable extent the decomposition of this preparation. It is only natural that this condition would be so, as the rapidity of hydrolysis of methyl acetate by hydrochloric acid is almost as rapid in a gel as it is in water; this eliminates the possibility of a general inertia due to viscosity.

According to the kinetic molecular conception of temperature—one other factor that will increase the decomposition of this salt is an increase in temperature, as this increases the chaotic thermal agitation of molecules affecting more frequent collisions.

With these conceptions in mind, let us now decide why glycerin is found to be more efficient than syrup in the preservation of this solution. Including the sugar present in aromatic elixir 120 cc of syrup in a liter would make the solution 0.41 molar in respect to sugar, whereas an equal volume of glycerin gave a molar concentration of 1.63, practically four times as great. Considering the molecules of glycerin or sugar as retarding the collisions of the reacting substances, the average distance travelled before a collision, or the "mean free path," would be four times greater in the preparation when made with glycerin than if made with syrup. To increase the molar concentration of the sugar to that of the glycerin it is necessary to dissolve 518.25 Gm. of sugar in a liter of the finished preparation. Accordingly five samples of the solution were prepared, one without glycerin or sugar, one of 0.82 molar concentration with glycerin and another the same concentration with sugar (one-half the pharmacopœial strength); two others were prepared with glycerin and sugar in each 1.63 molar concentration or the pharmacopœial strength. These five preparations were placed in direct sunlight at temperatures varying from 25° to 35° C., and the following decompositions recorded.

Sample without glycerin or sugar showed decided precipitation in.....	6 days
Sample with one-half U. S. P. quantity of glycerin showed decided precipitation in	7 days

[1] Scatchard, *Jour. Am. Chem. Soc.*, 45, 1580, 1923.

Sample with one-half U. S. P. quantity of sugar showed decided precipitation in	8 days
Sample with U. S. P. quantity of sugar showed decided precipitation in.....	14 days
Sample with U. S. P. quantity of glycerin showed decided precipitation in.....	15–16 days

From this we can formulate a mathematical expression, calculating the permanency of the solution:

$$T \propto M$$

and $$T \propto \frac{i}{t}$$

therefore $$T \propto \frac{M}{T}$$

and $$T = K \frac{M}{t}$$

where t is constant $$T = K \frac{M}{K} = KM \text{ and } K = \frac{T}{M} = 9.7$$

From Experiment $T = 8 \quad M = 0.82$

then $T = 9.7\ M$

when $M = 1.63 \times 9.7 = T = 15.8$ days

M = molar concentration, T = time, t = temperature.

B. SOLUTION OF MAGNESIUM CITRATE.

The principal decomposition in this solution is the hydrolysis of the acid salt into the less soluble normal salt which subsequently settles out of solution. Sixty cc of glycerin in place of the syrup used will prevent this decomposition for more than a month and in this laboratory when 30 cc of glycerin was used in place of syrup the preparation remained free from turbidity twenty days (that is, up to the time of writing). Preparations made with syrup and kept under the same conditions showed a decided turbidity within four to five days. Glycerin does not, however, prevent the formation of certain fine flocculent material in the preparation which change some writers ascribe to decomposition by microörganisms.

GENERAL CONCLUSIONS.

1. When the question of resistance against oxidation is considered, two factors increase the resistance, namely, viscosity and molar concentration of protective medium.

2. Molar concentration of the protective medium and temperature are the controlling influences in pharmaceuticals where the question of hydrolysis is concerned.

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THE PROBLEMS OF MAINTAINING PHARMACEUTICAL RESPECTABILITY.*

BY L. E. SAYRE.

If one would take time to read and re-read Dr. H. V. Arny's address on the occasion of his acceptance of the Remington Honor Medal for 1922, which is to be found in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, Vol. XI, No. 6, June 1922, with the title "The Place of Pharmacy in the World," he would be impressed with the inherent historic wealth of pharmacy in its contributions to science and would, if endowed with fervor, be inspired to militantly maintain its hard-earned reputation—earned, worthily, in the face of no little opposition and handicap. It is that sort of a feeling that prompts the writer to eye with misgivings the many interferences thrown in the pathway of pharmaceutical progress—barriers often erected by the enemy, but as often permitted to arise by the mental inactivity and indifference of the profession itself. In that sense the problem of maintaining pharmaceutical respectability assumes a real importance, and should enlist sympathetic activity on the part of scholarly pharmacists—

* Section on Practical Pharmacy and Dispensing, A. Ph. A., Asheville meeting, 1923.

meaning those concerned mainly in making a living by conducting a retail business reputably and successfully.

Quoting one phrase of Dr. Arny's excellent address: "I have tried to emphasize that pharmacy has a distinct place in the world of science as well as in the world of service and that it is the duty of every true pharmacist to maintain pharmacy's proper place in the world."

That word "service" which in its purity of meaning signifies so much has been so debased by the merely mercantile drug establishments' misapplication of it, that the public is investing it with less exalted applications. Real service as construed by the real pharmacist is the helping and promoting of customers' interests from a sense of duty, especially in such cases where the patron is unversed and needs help. What the chain store glossary of terms dubs as "service" should read "ingratiating servitude; a truckling for favors to come; the invitation of business by undignified submission to conditions, which are repugnant as being a sort of self-sought slavery." The delivery of a tooth brush or a five cent package of epsom salt, five miles, in response to a telephone call is not "service" in any pharmaceutical sense, but such trifling deliveries are known to be made with a trumpet flourish to that magical word.

Dr. Arny elsewhere in his address calls attention to the fact that the keynote of the century is publicity and he accuses the modern pharmacist of being too plainly unobtrusive and allowing other callings to get the credit of his achievements. It is very true that many pharmaceutical achievements have been allowed to be credited to the mother and sister sciences of medicine and chemistry without murmur of resistance. Unfortunately the publicity that the profession of pharmacy meets is too often second hand; mere overheard comments "caught on the fly"—incorrect, unjust or even libelous.

Heard *somewhere*. Perhaps on the street. Or, on the street cars. Just a chance utterance or so. What the bystander thinks about the merchant. What the merchant thinks about the druggist. What the public thinks about the mere merchandising druggist. There is always a sting lurking in overheard casual pow-wows. Somebody is being criticized. Others' opinions *do* count. Prejudice for or against reflects. It cannot be ignored. It must be thwarted or capitalized. There are no minutes of the conference and therefore the greater chance for the play of reckless assertions. Somewhere in the informal arena a bit of truth may be manifest—the bug under the chip. It is forced into consideration and we cannot help being influenced by it hurtfully or beneficially.

In other words public opinion is a power and must be counted with. It does not pay to be a mercantile weathercock. Every store must have a policy and the one with a repute for stable honesty is more apt to win than one that is known to reshape its course with every wind that blows. There is no doubt but that the mere merchandising drug store is a cancerous growth upon pharmacy. People who deal with such stores evidence an air of protest as they enter and leave, attracted by window displays and cut-rates. An unvoiced apology is on their lips and they would give much to be able to give vent to it. As one person said to another "I hate to be caught there, but.....": lots of comprehensiveness in the "but." Human nature is susceptible to blandishments. A "cute" business idea may be really contemptuous but its cuteness is the sugar coat that gives it currency.

The real druggist may have gradually and imperceptibly lost some of the external showings of a profession, but he has never knowingly or deliberately stooped to relinquish any portion of its dignity. Modern conditions have robbed pharmacy of honored traditions, lessened the mystery which once surrounded it, but there is no good reason why, even to-day, the drug business should not be regarded as being on a higher plane than merchandising and earn for itself a respect not bestowed on the sellers of cheese and onions and lemons and vinegar and starch if only for the reason that the druggist knows that vinegar and starch may be antidotes in time of trouble and because he knows when and where and how to use them.

But there are men renegades whose store fronts are emblazoned with gold pharmacy signs who use them as cheese is used to bait the mouse trap, to allure and assuredly sell scores of outside things to every chance sale of one drug item. There is not one professional soul-thrill in their many carcasses. They deliberately adopt piracy, and whatever will bring in a dollar is a ware for their shelves or cases. Yet if one were to suggest to them that they were not druggists and pharmacists at all—that they had apostatized the business in principle and fact—they would be indignant.

The real pharmacist will regretfully assume duties foreign to his business when they are forced upon him, but he will never seek for them. It is astonishing to note how the younger element of the business lightly regards such traditions of pharmacy which still are practicable things and lend themselves to perpetuation. They are prone to cast overboard the things which are aids to navigation because they are old fashioned.

The lack of scrutiny with which new proprietary nostrums are accepted is one of the things that some druggists should be ashamed of. There are many things of a vicious order that could be refused admission, to the good of customers and themselves. But it seems as if the advertised thing must be welcomed, however bizarre and unpleasantly or suggestively repugnant it is. In this connection it is to be recorded that a *bona fide* effort was undertaken by a person interested, to find out what the present-day status of so-called patent medicine was in a prominent store. The queries were "Which are the most called for and why? What were the medicaments in the favored things? Did they live up to their advertised description of contents?" The answer was astounding—"I don't care a damn what they contain. The more we sell of them, the more money we make. We simply supply demand. We are not *interested* in the contents." Yet this store and store-keeper would be loath to admit that the establishment he conducted was not a reputable pharmacy and that he was not well versed in his profession. He probably subscribes for drug journals and to associations—national and state, perhaps is a member of many societies; he is certainly among those who protest against indignity and clamor for professional status at the hands of the National Government. Such a position is astonishing. To maintain such an unprofessional attitude towards a subject so important to clients and patrons—to do what is evidently in conflict with the necessities of public health—is more than reprehensible. It was from the profession of pharmacy that the first overtures for the protection of the public by pharmacy laws and pure food laws came. The sentiment for these laws was fostered by the druggists.

A man who would make admissions of such indifference to the possible merit or demerit of the things he sold is not to be classed with representative professional pharmacists. If the public senses that he does not care a picayune for the quality and condition of the goods he sells, the public will soon be avoiding the store of such expressed indifference. There is a point beyond which even a rankly commercial drug store cannot venture. Brazenness and bluff offend in the last analysis.

If pharmacy has to suffer, by those who in many ways cast professional allegiance aside for the sake of gain, the more reason is there for its friends to maintain its proper place in the world by insisting that its every-day contact with the public shall be marked by decency and probity; that its necessary seeking of emolument for inherent professional service rendered shall not be offensively apparent.

While as a business man he cannot wholly disregard the demands of his customers he can circumspectly avoid stocking flagrantly palpable frauds. With watchful care his shelves will always show the respectable proprietaries; then, too, he will always see that undeteriorated goods go to the consumer. That is one of the ways in which the problem of maintaining pharmaceutical respectability may be furthered.

In dealing with such a subject as set forth in the title of this paper it is hard to keep rigidly to the task taken up; outside thoughts will intrude. The estimation of what constitutes respectability is not easily set down. The question of respect pure and simple is easier to arrive at. Occasionally it is borne in on to us that notwithstanding the attitude of indifference that the medical profession presents to the pharmacist, down deep in their consciousness they, nevertheless, feel that the drug man is "something more than a merchant" after all; but why he is held to be inferior, a merely tolerated being, negligible when under the thumb and mandate of that self-constituted superior body until he is found to be indispensable in the filling of a necessary niche, must be held due to a traditional prejudice brought down from the middle ages, when the pharmic lay-brother galled the medico because he was better informed relative to nature's medicinal products. Maybe it was because the recluse liked communion with the simples of nature and the investigation and application of their properties that gave the leech drug-handler such confidential relations with both the people and the nobility, that the consultations concerned in their intercourse assumed almost the secrecy of the confessional! That same sense of confidence, strange to say, persists even in this age and time. There are very few of the older practitioners of pharmacy but who can look back and remember uninvited, unbidden confidences on the part of two sides of a family which, if they had not been deemed sacred and uninviolable, would have wrought terrible domestic trouble. It may be considered as certain that the "cut-rate store" never will experience a condition implying professional confidence while the respected if neglected pharmacist remains a member of the cloth embracing at least the trio of perpetuated antiquity—the clergy, the medico, and the apothecary.

The reference to the doctor's unwilling appreciation of the druggist brings us to a "testimonial" stage of the reminiscion—testimony by inference only but palpable testimony. The writer was recently requested to report as to the possibility of a recommendation of a candidate to fill a position a little later on. In

the first letter no specific mention of detailed accomplishments sought, were given. A second letter was quite specific. If the person sought for was presumably to be obtained from among the coming graduates of a pharmaceutical school it suggests "no end" of good opinion of the attainments of the drug person about to enter into the battle of drug life. No "looking down on" the pharmacist in the seeking for the right person in the right place! The plans and specifications call for a super-pharmacist; the first preference being for a lady assistant rather than a gentleman, and a person "younger in years than one older;" condensing slightly, the candidate will have to perform:

1. General office duties, meeting patients, arranging appointments, etc.
2. General clerical work, keeping accounts, collections. General correspondence, requiring short-hand and typewriting. Clerical work on business *outside of profession.*
3. Dispensing of his own medicines, the assistant filling the prescriptions.
4. Assisting in X-Ray work and developing X-Ray plates and films. Keeping record of same.
5. General laboratory work including urinalysis, sputum examinations, blood counts, general bacteriological work for clinical diagnosis, making autogenous vaccines.

The seeker after an eligible candidate admits that getting the combination of short-hand, typewriting, clerical work and special training in laboratory work in his experience has been hard to find, but he shows no fear that a graduate of pharmacy should not be able to accomplish the things desired. A suggestion that the assistant will be permitted to do most of the work exudes eloquently in somewhat callous summary of duties. The problem of maintaining pharmaceutical respectability by the successful candidate is not alluded to in this letter, but it is to be hoped that the emolument the employer has in mind exceeds in amount that of the average compensation of the calling, and if not fully commensurate with the all-embracing attainments specified will be sufficient to enable the assistant to dress the part, even if it does not admit boasting of affluence.

An article in the *Western Drug Record* of June 1923 headed "Slow by Degrees and Pitifully Less," draws attention to the lessening number of crude drugs in the U. S. Pharmacopœias VIII and IX. The tenth revision is to include less than 100. The writer says that it seems to be a fad to be continually dropping simple drugs, with a tendency to use active principles or chemical compounds in their place. The utilization of the simple virtues of a respectable drug is pooh-poohed by the alkaloid prescriber as unscientific, while the modern medical graduate hardly senses that most drugs have accompanying assisting tonic or aromatic bodies in their natural form. If the Pharmacopœia is to include less and less of them and fewer and fewer of pharmacy-made preparations it will ultimately become a pamphlet which containing so little, might be entirely done without. Giving the aim of the druggist as being the dispensing of drugs, he credits the medical man with an endeavor to dispense *with* drugs.

This serves to give point to a response to an order for crude assayed vegetable drugs given a highly regarded firm of pharmaceutical chemists, who for many years specialized in authentic first-quality botanical drugs. The answer came that the firm had ceased the milling of drugs and spices adding:

> "We were very proud of the reputation established for the quality of our products and had hoped that the demand would increase to sufficient proportions to justify a continuance of the business, but owing to the adverse conditions under which retail pharmacists have been compelled to make their own preparations during the past ten or twelve years and the fact that the sale of our ground drugs was consequently dwindling to such small proportions as to make the loss greater every year, we found it absolutely imperative to drop the line."

It is to be regretted that some of the things which helped to make the standing of pharmacy one of high regard and put a seal of respectableness on it have been progressively filched from it. The correspondence quoted serves to show that it has been robbed of some of its birthrights. Outside of war-time restrictions and taxations it has been sacrificed without compunction by those who should have been its best friends—the active enforcers of the prohibitory amendment. In their devising of rules and regulations with an eye single to *their* one goal—success, the injustices that were imposed on the pharmacists were not even dreamed of. The purely manufacturing end of the drug-store was really pharmacy in action, calling for craftsmanship in manipulations and invention in processes. These things, in which, by excelling, it maintained an honored place over pretenders who usurped the mercantile end—frequently usurpation with bad intentions including dealings with drug habitues—are taken from it. The store individuality which marked every pharmacy—which singled it out from its equally respectable neighbors—is becoming a thing of the past. The real pharmacist feels this acutely, because oftentimes his new principle enemies had been his most intimate and respected friends. This anomaly will hardly be believed by those who have struck him the hardest, but it is so, and has added to the difficulties of maintaining pharmaceutical respectability.

In a nutshell, the correspondence shows that the demand for standardized authentic perfect botanical drugs, the supply of which for decades had been an important business undertaking, had gradually decreased until it was a losing rather than a lucrative undertaking. Why? Because the pharmacist has been progressively shackled in the obtaining of pure alcohol which is the one necessity in both the research and manufacturing of drug products. He at first tried to keep up with the imposed regulations, hoping that a practical way out would be devised and reached, to find in the end that he had become a worker without tools—a pharmaceutical chemist without his most important chemical. It shows that the little research corner that every pharmacist maintained somewhere in his establishment had been in effect taken from him. The newly discovered things of his business would have to come from capitalistic huge laboratories—he was no longer permitted to invent or plan syntheses. To speak of shackles is but a weak utterance, the drugman now has to do business figuratively in ball and chains.

So the "Problem of Maintaining Pharmaceutical Respectability" devolves on the pharmacist pure and simple. He must hold tenaciously to every vestige of the old-day honorable practice that is left to him; meet his customers as fellow beings, not as objects to be exploited; avoid the methods of the sharks in trade; be concerned even in proprietary righteousness and never allow himself to think that the man who openly says he "don't care a damn what he sells" has any advantage in the long run over the man who does care for his customers and will render "service" with a capital S when such a course is indicated.

ABSTRACT OF DISCUSSION.

The foregoing paper was discussed by Chairman Ruth, H. Lionel Meredith, D. F. Jones, B. O. Shiflett, John C. Krantz, Jr., and others. The author, Prof. L. E. Sayre, was unavoidably absent and, therefore, to that extent the discussion is incomplete.

Exception was taken by a number on the reflection cast on those who sell "patent medicines." It was contended that it is necessary within reason to supply the public with such preparations when they are demanded. They are advertised in magazines and papers and if one pharmacist does not sell them another will.

Mr. Ruth gave an experience—a customer had asked over the 'phone relative to a preparation which is largely sold and he discouraged the customer but, nevertheless, the preparation was bought at another store. A few weeks thereafter the same patron came into the store and asked advice relative to another preparation and this time he was a little more reserved in expressing his opinion. He pointed out that unless one is very careful and speaks from authentic information, a preparation may be unjustly spoken of, because among these preparations there are certainly some of value.

H. L. Meredith protested against some of the arguments in the paper—he stated that he conducted a pharmacy and did not sell any "patent medicines," that he went so far as to refer customers to other stores who came in and asked for medicines that were regularly prescribed by physicians, that he was engaged in dispensing prescriptions and laboratory work.

In his opinion much criticism of pharmacists did not come from the public but from those within the profession. While he was not engaged in selling general merchandise, pharmacists who did carry stock the sales of which increased the volume of their business did not lose their professional standing because of that so long as pharmacy received due attention. It is very unfortunate that remarks along the lines of the paper are made whereby certain conditions are exaggerated and rightful consideration is not given to the professional standing of the pharmacist. Such papers as the one by Professor Sayre do not reach the public and therefore cannot directly educate it.

The duty of the pharmacist is to serve the public and the medical profession and how this can best be done must be left to some extent to those engaged in the work. He said that every few days he visited some pharmacy in order to get the atmosphere of that pharmacy. In his opinion it did not matter how many side-lines were carried, it was a matter more of the respectability of the pharmacist; so long as he maintained pharmacy in the proper way in his store, there was no reason why he should be condemned for increasing the volume of his business by selling articles for which there was legitimate demand.

D. F. Jones supported the arguments presented by Mr. Meredith. He did not push the sale of patent medicines but he did not deny the right to others who did so. In his opinion there were other articles than those designated as side-lines which did injury to the drug business. It was the duty of the pharmacist to see that the professional standing was kept up and he advocated a strict adherence to the Code of Ethics of the American Pharmaceutical Association. The paper by Professor Sayre was in his opinion very good but not complete in some of its presentations.

B. O. Shiflett coincided with former speakers and said that the people came to the drug store to buy; the pharmacist does not go to them to sell his wares.

John C. Krantz, Jr., thought that the members would profit by the remarks of Mr. Meredith. The public must be served and can be educated. The dignity of the profession should be upheld. The public largely estimates the pharmacists according to what they say of themselves.

Chairman Ruth stated that discussions of this kind were enlightening, that there would probably always be differences of opinion relative to the subject discussed in the paper, not only from the viewpoints of pharmacists but also of the public.

A PANACEA FOR COMMERCIAL SUCCESS.*

BY HARRY B. MASON.

During the last few years the retailer's expenses have risen and costs have gone up. Profits have had a corresponding tendency to shrink. Merchants have been told in season and out of season that the remedy for this lay in turning over their stocks more frequently. By this procedure, it is argued, losses will be converted into profits.

There is some truth in this philosophy—of course there is. Every president of a large corporation who has a vast amount of money invested in his business knows that he should turn over his capital as frequently as possible and that quite often the rate of turnover determines the difference between moderate success and brilliant success.

The president of the Liggett Company has recently told the readers of *System* how he reduced his stock by one-half and thus doubled his turnover. We know that the large chain-store groups like the A. & P. grocery shops increase their turnover greatly by carrying only a comparatively limited number of fast-moving items. Any corporation which needs to watch closely the relation between investment on the one hand and earnings on the other is naturally desirous of reducing the investment as much as possible in order that the percentage of earnings may therefore be increased. It wants to make 15 or 20 per cent. on its capital instead of 8 or 10 per cent.

When we turn to the individual retailer, however, we face a somewhat different situation. Capital is not here the paramount consideration. Capital is of much less consequence, indeed, than the retailer's own labor, personality, and methods of doing business. Many a merchant, carrying too far the doctrine of rapid turnovers, increases, it is true, the percentage yield on his capital, but greatly decreases the total profit flowing from his business.

What I aim to do on this occasion is to emphasize two points. The first is that turnover to the average retailer, while always to be kept in mind, is not so important as amateur "experts" have made it appear. The second is that there are other factors of vastly more consequence in the conduct of a retail business.

Consider, for instance, the figures representing a drug store with sales of $20,000 a year. The cost of goods sold is about $13,000, the expense about $5600, and the net profit $1400 (besides a salary of $1500 or so in the expense account). The percentage of expense is 28 based on the selling volume. The percentage of gross profit is 35 and the percentage of net profit is therefore 7.

Now what reference has stock turnover to a business of this type?

We are often told that a druggist ought to realize at least three turnovers a year. Inasmuch as the cost of goods sold annually is $13,000, he would thus have to reduce his stock investment to a point around $4300. This is doubtless pretty small, but assuming that such a point can be reached we then find that a net profit of $1400 has been made on a stock investment of $4300.

Without discussing the investment in fixtures, and considering the stock alone, the druggist has therefore made his capital yield him $32\frac{1}{2}$ per cent. But if, now, he is able to turn over his stock only one and one-half times a year instead of three,

* Section on Commercial Interests, A. Ph. A., Asheville meeting, 1923.

his investment becomes $8600 instead of $4300, and he is then making 16¼ per cent. on his capital instead of 32½.

This looks bad from the standpoint of return on one's investment, doesn't it? It seems to prove everything that the philosophers are claiming. In another type of business, where capital was more of a factor, the difference in yield would be startling. But let us look into the facts so far as the druggist is concerned.

What has this druggist done? He has tied up $8600 in stock instead of $4300. His investment is $4300 too much. What has he therefore suffered? Simply this: he has lost the interest return on the extra $4300—that's all. Estimated at 6 per cent., say, this is a matter of $258 a year.

For, if the druggist had kept his stock down to $4300, and had invested the remaining $4300 outside his store, as would otherwise have been the case, the money would have earned him 6 per cent.—provided he knew how to invest it wisely and safely. He might therefore have added something like $258 to his total net income for the year, but this isn't any such sum as we are often led to believe can be realized by turning over one's stock twice as rapidly. Not here, certainly, do we find a panacea for all the ills of store-keeping.

I repeat that capital to the average druggist is not the paramount consideration that it is, for instance, to a large manufacturing corporation. If a druggist has an investment of $8000 in his business, he is entitled to receive from it at the normal rate of return only $480. But this is nothing. He couldn't live on $480 a year. He couldn't live on the return from his capital of $8000. His capital therefore becomes a relatively small factor in the situation. His own time and his own brains are the predominating consideration with the average merchant owning one store. What can he earn as an individual—this is the point at issue. And it must be made clear that a merchant's use of his own time and his own personality is of vastly more consequence than any question as to how his relatively small capital is utilized.

I have shown that the average druggist, by turning over his stock twice as often annually, increases his income only to the extent of $258. I want to add now that the dealer who rides this turnover doctrine too hard loses a good deal more than $258 anyway. He saves at the bung and loses at the spigot.

Dealers are often told that they should keep their stocks down. They should cut out unnecessary duplications. They should buy in small quantities from hand to mouth and thus increase their rate of turnover. Many merchants, I dare say, are striving religiously to carry out this advice.

But underbuying is frequently worse than overbuying. A dealer who underbuys is very apt to be out of an article when it is needed. And when a dealer is out of an article he cannot very well sell it. He is therefore not turning over his capital and is in fact slowing up his turnover rather than increasing it.

On the other hand, if the dealer buys a decent quantity of a salable item, and then gets behind that item and pushes it, he speeds up his turnover very effectively. There are times when bold buying means bold selling. And the reverse is usually true—timid buying means timid selling.

Suppose a dealer is out of an article when it is called for—what happens? Either he loses the sale, and thus cuts down his volume of business, or else he goes to a lot of trouble to get the product and deliver it to his patron. In either event he loses more than he gains.

Let us assume that he has to send to the jobber or some other supplier for the item. He wastes five minutes calling up on the 'phone. The jobber furnishes a special messenger to hustle the article out to the dealer. The dealer supplies a special messenger to send it on to the customer. Or perhaps the dealer sends his own messenger first to the jobbing house and then to the customer. In any event a lot of time and money are wasted. The expense of selling this particular article is far greater than it would be if the article were kept in stock.

Not only that, but the customer is displeased. He doesn't get the stuff when he wants it and he develops a poor opinion of the dealer. The next time he goes to another store where he can find a better assortment and where he can get what he wants.

A wise merchant in Illinois prints on his letterhead the following statement: "I would rather lose a little occasionally on goods on hand than to lose profits by not having the goods, as by that method I lose both the profit on the sale and also lose a customer. The people are bound to go where they can get the goods."

Yes, my friends, you can easily carry this turnover gospel to a ridiculous point. It is far better to have a reasonable stock of goods on hand and then be able to supply the wants of your customers. Isn't it so?

Of course this statement must not be interpreted to mean that a druggist should load up on slow-moving items. For the most part he should do what the Liggett people have recently done, namely, cut out the stuff that doesn't sell. Dead stock not only means loss of interest on the investment, but it means merchandise which gradually becomes soiled in appearance and lessened in value.

No, I am not talking about slow-moving items. I am talking about live merchandise which can be sold if selling energy is used, and I am maintaining that it is usually better to buy such material in quantity, carry a reasonable stock, and then get behind it and sell it. The trouble with a too rigid adherence to the turnover idea is that merchants reduce their stocks to the vanishing point and then do not have what customers want.

I think the business doctrinaries often confuse increased turnovers with increased sales. If a merchant can turn over his capital more frequently by virtue of selling more goods, he is undeniably helping himself. There can be no gainsaying this point. But this is another matter entirely. Increased turnover is one thing, and increased business is quite another. Increased business, as a matter of fact, comes more frequently from a reasonably generous stock than it does from a niggardly stock.

Witness some of the fallacies that we hear on questions of this sort. The other day, for instance, the representative of a manufacturing house making bookkeeping equipment for merchants complained that many retailers assumed they couldn't afford to carry an article which paid them a gross profit of 10 per cent. on sales when their expense was 30 per cent. These retailers are right, he said, providing they only turn their stock of this item once a year. But if they turn it twelve times a year, and make 10 per cent. each time, they are getting 120 per cent. If they deduct from this 120 per cent. their 30 per cent. of expense they still have left a net profit of 90 per cent!

Can you possibly beat reasoning of this kind? And yet it is perpetrated by a man who is paid a large salary and who is the accredited representative of a leading manufacturer!

Whatever the dealer's expense is, whether it is 30 or 20 or 15 per cent. it must be applied to every sale. You can't get away from this inescapable fact. If it costs a merchant 30 per cent. of his sales to do business, and he only makes 10 per cent. on the sales price of an item, he is failing by 20 per cent. to pay his expenses, let alone the matter of securing any profit. The more he sells, and the greater his turnover, the worse he is off. No man with sense can possibly escape this conclusion. Of course it costs less to sell cigarettes, for instance, than it does to put up a prescription, but whatever the expense is it must be applied to every sale.

And then there was a writer not long ago who got off this brilliant piece of logic:

> The merchant who makes 10 per cent. net on his sales and turns his stock over five times a year makes 50 per cent. on his invested capital. The man who makes the same percentage on his sales, but who turns his stock only twice, makes only 20 per cent. Wouldn't you rather make $5000 per year than $2000?

I shall not stop to point out the confusion in this man's mind between profit on sales and profit on invested capital. A 50-per cent. return in one case and a 20-per cent. return in the other are obviously wide of the mark. Let me, however, puncture the fallacy involved in his statement that $5000 would be yielded on five turnovers while only $2000 would be yielded on two turnovers.

The average druggist, perhaps, has a stock of about $6000 and turns it over twice annually—a total of $12,000. Suppose he turned his stock over five times annually. He would then have invested one-fifth of twelve thousand dollars. This is clear, isn't it? With the larger rate of turnover, therefore, his investment would be $2400 instead of $6000, and his capital would be reduced by $3600. Six per cent. on this $3600 would mean to him $216 a year. Turning the stock five times instead of two therefore means a difference of only $216. And yet we are told that in one case the dealer would make $2000 whereas in the other he would make $5000!

Here again, probably, the writer confused increased sales with increased turnovers. There isn't any escaping the fact that by doubling or trebling one's volume of business the profits can be greatly increased. But I repeat that stimulation and expansion of business is one thing, and that a mere increase in turnover is a vastly different thing. The two are as far apart as the poles.

My object is to point out a common fallacy. It is to emphasize the plain truth that so far as the average druggist is concerned there is no panacea for business success in the doctrine of increased stock turnovers. One should turn the stock over as frequently as is consistent with wise merchandising. He should avoid having dead stock accumulate on his hands. He should watch out that his money is not tied up too long in unsalable merchandise which deteriorates with age.

On the other hand, however, one cannot escape the conviction that buying from hand to mouth is very frequently a vicious practice. It means in the case of salable merchandise that the merchant pays more for his goods. It means that he is frequently out of things which his customers need. It means a limited assortment which drives patrons to other establishments. It means increased expense for freight and express.

Truth has a way of going around in a circle. Perhaps the best way to increase one's turnover is to be somewhat less particular about it. I mean by this that the merchant who buys reasonable stocks of things which he knows he can sell, and

then gets behind them and pushes them energetically, is the man who is really going to increase his turnover by increasing his sales. This is the only way, indeed, that the trick can be turned wisely. To attempt increasing one's rate of turnover by decreasing the stock, as merchants are so frequently advised to do, is often fatal to development.

ABSTRACT OF DISCUSSION.

The paper by Mr. Mason was discussed by Messrs. Mortenson, Mann, Smith, Culley, Bradley, Philip, Webster and others.

Charles F. Mann brought out the point that up to a few years ago a 33⅓% profit was considered sufficient for the retail pharmacist but under the present conditions it was hardly possible to get along with a gross profit of less than 40%. While it is necessary to sell articles for less than that profit, the difference must be made up in the selling of other articles.

Henry B. Smith referred to the analysis of a public accountant of the business of fifteen stores in which the average profit was 27%. Sixty per cent. of the volume of the business included "patent medicines" in these stores. In other words the 40% had to make up for the deficiency of profit of the 60% value of the business.

Theodore J. Bradley was pleased with the logical and convincing presentation by Mr. Mason but called attention to the permanent investment in store fixtures and furniture which must be considered in determining profit.

W. Bruce Philip stressed the importance of a careful analysis of the business so that due consideration can be given to the profit that is necessary in order to make a living out of it.

John H. Webster referred to the sale of fast-selling stock, the sales of which were quickly made but the profit on these articles was probably less than half of the general profit that should obtain.

Mr. Mann pointed out that if Mr. Webster sold only articles of the kind on which the profit was below the average and less than the overhead percentage, he would certainly not be making money.

Mr. Mason supported Mr. Mann's thought and pointed out that on articles like those referred to by Mr. Webster the direct overhead expense was very much smaller than that of the prescription department, for example. The time factor entered into sales of goods from the sales of which a larger profit may be derived must make up the average.

COMPILATION OF STATE AND NATIONAL PURE DRUG LAWS.

The task of revising the publication entitled "Compilation of State and National Pure Drug Laws" which for some years has been prepared jointly by the Proprietary Association and The National Wholesale Druggists' Association is now well under way. In view of the increased size of the volume, the great expense of compiling, printing and distributing, it has been decided by the governing bodies of each association involved to turn the publishing work over to Standard Remedies Publishing Company.

The Compilation of State and National Pure Drug Laws will embrace two parts—

Part I. Text or summaries of all State laws affecting the sale of drugs and medicines, arranged by States alphabetically. These will include liberal extracts from the State pharmacy, poison, narcotic, prohibition, labeling, advertising, adulteration and other statutes which affect drugs and medicines for their marketing.

Part II. Will contain the text of the following National laws and the regulations for their enforcement:

1. Pure Food and Drugs Act of 1906.
2. Harrison Narcotic Law, and amendments.
3. Insecticide Act of 1910.
4. National Prohibition Act and amendments.

—From *N. W. D. A. Bulletin* No. 76.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES*

SHOULD STUDENTS BE SELECTED?

BY FREDERICK J. WULLING.

Some colleges are now selecting from applicants for admission those best fitted to profit by the courses they wish to pursue. The applicants must first of all meet certain prescribed minimum scholastic requirements. The selection is then made from among those who meet those requirements.

It is not my purpose to go into the basis or method of selection except to say that the intelligence test is in my opinion the best single test. It is by no means the only one but if the applicant fails to reach at least the average intelligence quotient (I. Q.), he ought not to be regarded as qualified to submit to additional tests. With only an average I. Q. must go industry, earnestness and determination. The intelligence test alone usually indicates the limitations of the person's intellectual working capacity. If he lacks in this one respect, no matter how good his intentions, his morals, his application to work are, he will never be successful in a calling requiring a higher I. Q.

It is evident to all observing educators, and to others as well, that too great a number of unqualified persons are going to colleges of all kinds at present. I am not speaking of primary or secondary education but of the higher education provided by academic and professional colleges. In the primary education especially, but also in the secondary, the education should be adapted and suited to the pupil. Persons wanting to go to institutions of higher learning, must sooner or later be made to show that available and reliable tests indicate their fitness to be members of the higher callings. There are many persons in the professions of all kinds who are unqualified, inherently or educationally, and who would have been more successful and happier had they become good artisans. Possibly such persons are not to blame; no one may have advised them. But as the complexity of our society and civilization increases, more thought, discrimination and order must be injected into the necessity of thoughtfully and willingly considering his relations and obligations to society at large. Where he does not do this himself, society is increasingly doing it for him. There is the individual duty and the collective duty. The latter, where it is clear and unquestioned, is expressed in a large measure by statutes and laws. In the remaining degree, this collective duty is carried out by those having administrative and directive powers either by virtue of office or by their particular fitness or qualification or interest. But these are always in the minority. Often they are helped by public opinion, even actuated by it. This minority is made up of fairly level-headed individuals and organizations of the right kinds, who are consciously or unconsciously solving or attempting to solve problems as they arise who look forward to apply the experience and lessons of the past and present to the future, in order that man may have more happiness

* The contributions in this issue by Dean Frederick J. Wulling conclude the papers sent in for this Department by Chairman R. A. Lyman of the Executive Committee, A. C. P. F. His successor, Prof. C. B. Jordon, now assumes the former's duties in the conduct of this Department.

and joy and less hardship. This minority does the thinking and the planning for the great majority and indicates and fixes standards of all kinds. It is an agency for, and doing, affirmative work in the interest of all. A spirit of positive progress animates it and this spirit is ever at work and accounts for our development. It is this spirit that is suggesting and in a fair measure already applying the idea or principle of selection for the recruiting of the higher callings.

Emphasis is placed upon the value of selection from two points. First, more persons are seeking admission to colleges than ever before, actually and relatively, and a larger proportion of these is unqualified. Second, the financial burden of educating or attempting to educate the unqualified is heavy and militates directly against the qualified and hence against society at large.

There is no question in my mind that pharmacy is not better off because of the intellectually and ideally unqualified in its ranks. Every calling is thus handicapped, but some of these are protecting themselves by selection. Those whom they do not select, other callings get and pharmacy has a goodly number of those who could not for instance qualify for medicine or law. Ought not pharmacy to protect itself similarly? If we all had the right sort of regard for our calling we would quickly set up standards that would be more according to the scope and responsibility of our profession.

Some blame the colleges for the poorly qualified among us. The colleges taken together must acknowledge some shortcoming in this respect but they certainly have done as much upward work as possible with the comparatively little support the profession at large has given them. Some of them are ready now to apply selection in the determination of those to be admitted. If past experiences of the colleges who periodically advance their standards continue, such colleges will be glad if the proposed selection of students is not actively opposed, but on the other hand I believe the number of thinkers and workers for better pharmacy is increasing and that upward steps are receiving more support than ever.

To give more force to what I have said, possibly I may be pardoned for giving a concrete example of the need of selection. There were admitted to the College of Pharmacy of the University of Minnesota last September a total of sixty-nine freshmen, all of whom with two exceptions (war specials) met the full high school and subject requirement within the high school curriculum requirement. Of these, eleven dropped out before the end of the first quarter, on account of inability to keep up with the college scholastic progress. At the end of the first quarter sixteen additional freshmen failed to make passing marks in most of their subjects and they now are on probation during the second quarter with the prospect of being dropped at the end of the quarter. First-year students in other colleges of which I know quite generally seem to be less qualified than freshmen were several years ago.

Inquiries that I have made have brought out the fact that most of the dropped students in a number of colleges came from families and environment that clearly indicated lack of background for higher learning and all that goes with it. These students ought not alone to be blamed for wasting three months or a year of their time and the time and expense involved in finding out their unfitness. Some one else or a proper agency should have done this for them in their own interest and in that of the State. Such an agency would pay for itself over and over in many ways.

Schools of medicine, education, law, business, now require two years of academic college work before admission to professional courses. Engineering, dentistry and some other colleges require one academic college year preparation for entrance to their technical courses. Selection goes on during these two years. Those who survive the prerequisite year or two are quite likely capable of going on to the professional schools, but even some of these have reached their intellectual limitation and cannot carry the higher work. Pharmacy has no such or any other agency for selection, although its work and service are comparable in extent and responsibilities with those of other professions.

In a later paper I will take up the economic and other losses involved in the attempt to train or educate the intellectually unfit or unprepared.

ELIMINATE THE UNFIT AT THE SOURCE.

It appears that applicants for entrance upon next year's course in the colleges of pharmacy are much earlier and in greater numbers than usual, but I seriously doubt the correctness of the statement made to me by a New York editor, that "practically all of the colleges of pharmacy have enrolled all the students they can accommodate for the term beginning next fall and they have already turned away many fully qualified applicants for matriculation because the classes are already filled." If the statement is true, there is occasion for rejoicing because some colleges would thus find themselves enabled to raise their requirements to proper standards. This would reduce the number of matriculants but increase the quality. The present need of pharmacy is not greater numbers but greater quality on part of entrants. Of course some will challenge my claim that altogether too many are entering pharmacy at the present time. No one could successfully hold that the public of this country is in need of the enormous increase in drug stores that we have experienced during the very recent past. It was reported not long ago that the City of New York increased its number of drug stores by fully one thousand. The same claim was made for Chicago and relative reports came from practically all parts of the country. These seem exaggerated figures but that there has been an unprecedented and unnecessary increase in the number of drug stores everywhere cannot be controverted. This increase following upon the prohibition legislation leads to an obvious conclusion and prompts my suggestion that applicants for entrance into the ranks of pharmacy, especially the older ones, should be subjected to the utmost scrutiny and inquiry into their intellectual and ethical standards that would make a further debauching of our profession more difficult.

We do not need more students nor more pharmacists if we base our measure upon the professional pharmaceutic needs of the people. The colleges can and no doubt will accommodate themselves to the legitimate demand growing out of the prerequisite requirements. They should not be censured for not being able to meet (if that is the case) a most unusual and sudden demand upon their facilities, a demand not due entirely nor very largely to the prerequisite. The colleges ought to make selection among their applicants, limiting the number selected to their facilities. The bases of selection should be carefully fixed. A little backbone and

determination put into such a procedure would discourage a large percentage of those who are unfit by education and disposition to become useful and ethical members of our ranks. I say this without hesitation because I have personal knowledge of the success of this sort of discouragement with certain persons of unethical and parasitical inclinations.

Let me employ this opportunity of repeating what I have often said before: that the colleges will never suffer reduction in enrollment because of advance in entrance requirements. It has been our experience and also the experience of others that as entrance requirements and even fees are increased, no reduction in enrollment but rather increase follows. The logical thing to do therefore is to increase requirements to a point that will eliminate the unfit as well as the unscrupulous at the source.

PHILADELPHIA COLLEGE OF PHARMACY AND SCIENCE WILL CONTINUE ITS FREE POPULAR SCIENCE LECTURES.

The free Popular Science Lectures will be continued semi-monthly at the Philadelphia College of Pharmacy and Science during the winter. Popular Science talks will also be broadcasted from one of Philadelphia's Broadcasting Stations, following up the program inaugurated last spring. The attendance at the lectures is good and has brought the audiences into a better relation and understanding of pharmacy. Reference is made chiefly for the purpose of inducing institutions elsewhere to arrange for programs that will present opportunities for informing the public of the importance of pharmacy and pharmacy schools.

SOFT DRINK REGISTRATION RULES.

Treasury Decision 3517, issued recently by the Internal Revenue Bureau, amending various regulations relating to registry under the internal revenue laws, required the registration of "every manufacturer of cereal beverages; of unfermented fruit juices or imitations thereof; of still drinks; of natural or artificial mineral waters or table waters, or imitations thereof; of finished or fountain sirups; of carbonic acid gas who sells such gas to a manufacturer of carbonated beverages, or to a person conducting a soda fountain, ice cream parlor, or other similar place of business; of carbonic acid gas who uses such gas in the production of carbonated beverages; of carbonated beverages made with concentrates, essences or extracts; of carbonated beverages made by use of finished or fountain sirups manufactured by such manufacturer; and every person conducting a soda fountain, ice cream parlor, or other similar place of business who manufactures any syrups of the kind mentioned in article 13."

The law provides a penalty of $1000 for failure to register or for failure to keep certificate of registration posted.

COMPOSITION OF SOME MIXTURES SOLD FOR MAKING ALLEGED GENUINE EUROPEAN WINES.

By L. F. Kebler.

This country was for some time flooded with literature offering to sell mixtures for the manufacture of various wines possessing genuine flavors and aromas. No grapes were required for this purpose, as will be shown by the following:

In one case the mixtures were alleged to be infected with bacilli for fermentation purposes and found to consist of barley, rose hips, European mountain ash, St. John's bread; another sample in addition to the above contained dried figs, dyed, and still another contained weed seeds and some artificially dyed wood. From these mixtures, by following the instructions, may be prepared most any wine desired. Among those enumerated may be mentioned, Rhine, Moselle, Port, Tokay and Bordeaux.

In other instances alleged concentrates of the various wines were offered to regenerate genuine Burgundy, Malaga, Port, Bordeaux, etc., guaranteed to possess the same bouquets, body, alcohol content, etc., as the respective genuine wines.

In every instance the use of the mails was denied.

UNITED STATES PHARMACOPŒIA.

TENTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.*

PART II—FIRST PROOF.

BOTANY AND PHARMACOGNOSY.

The United States Pharmacopœial Convention of 1920 recommended that abstracts of changes proposed for the U. S. P. X and new standards and descriptions be published before final adoption, that those who are not members of the Revision Committee may have an opportunity for comment and criticism.

In compliance with this recommendation, the following abstracts are submitted. The nomenclature and the exact wording of the text do not necessarily represent that to be finally adopted and doses have not been appended. Abstracts will be issued from time to time covering other texts for the Pharmacopœia.

Comments should be sent to the Chairman of the Revision Committee,

E. FULLERTON COOK,
636 South Franklin Square,
Philadelphia, Pa.

GENERAL POLICIES GOVERNING THE REVISION OF THE BOTANY TEXTS.

1. The definition consists of a complete sentence beginning with the official English title and stating the part or parts of the plant making up the drug and the botanical names and family name of the plants from which the drug is obtained.

2. A purity rubric covering the purity and quality of the drug follows the definition. The statement in the text is controlled by General Standards which it is suggested be included in the Introductory Notices.

All special standards deviating from the General Standards are so stated in the text. It will be noted that the figures for total ash have been eliminated and quite generally only the figures for acid-insoluble ash are included. This is done as the cleanliness of drugs is based for the most part upon the amount of allowable sand and dirt insoluble in hydrochloric acid.

The methods for determining these standards will be submitted later and will be included in another portion of the U. S. Pharmacopœia.

3. The descriptions of crude drugs follow the purity rubric and will be noted are in the substantive form with paragraph lead.

The lead "Structure" is used for the paragraph of histological description and the lead "Powder" for the description of the ground drug.

4. All unimportant technical language has been omitted or replaced by English terms so as to give greater emphasis to the standards included in descriptions and tests.

GENERAL STANDARDS FOR VEGETABLE DRUGS.

NOTE.—This matter is to replace the paragraph in Introductory Notices of U. S. P. IX on page XLVII.

VEGETABLE DRUGS. In the case of vegetable drugs the definition is qualified by the standards of purity given in the text for each drug. The standards provided in the text apply also to the powdered or ground drug.

Vegetable drugs are to be as free as practicable from insects or other animal life, animal material or animal excreta. They are to be free from moldiness and show no discoloration, abnormal odor, sliminess or disintegration due to any cause.

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J. H. BEAL,
801 W. Nevada Street,
Urbana, Ill

For preservation of vegetable or animal substances from the ravages of insects, it is directed in special cases that they be preserved in tightly closed containers and a few drops of chloroform or carbon tetrachloride added; it is not intended that this precaution should be used for drugs imported in bales or large original containers. This precaution is intended to aid in the preservation of drugs in the stock of a pharmacist.

The following drugs are prone to the attack of insects:

Aconitum	Cardamomi Semen	Glycyrrhiza	Pepo
Belladonnae Radix	Carum	Jalapa	Rheum
Calumba	Coriandrum	Linum	Rosa gallica
Capsicum	Ergota	Myristica	Strophanthus
			Zingiber

It is not commercially possible to obtain vegetable drugs in the state of absolute purity and a limited amount of innocuous extraneous or foreign matter adhering to the drug admixed with it, is usually not detrimental to the drug. It is desirable that vegetable drugs be obtained as nearly uniform as possible. In some cases the allowable percentage of foreign organic matter is specified in the text under the article. The presence or admixture of any poisonous or dangerous foreign substances, however, is not permissible. Foreign organic matter refers to any part of the plant or plants yielding the drug, except that part or those parts designated as constituting the drug; and to any other plant parts, vegetable tissues, material or substance.

Furthermore, it is not commercially possible to obtain vegetable drugs completely freed from a certain amount of sand or adhering inorganic impurities. In order that vegetable drugs be of a uniform quality and as free as practicable from foreign inorganic substances it is required that in all vegetable drugs the amount of foreign inorganic matter, estimated as ash insoluble in dilute hydrochloric acid, be not more than two per cent. of the weight of the drug. This tolerance applies to each vegetable drug recognized in the Pharmacopœia of the United States unless otherwise specified under the drug.

The proposed changes for the U. S. P. X follow:

Acacia.—Total ash per cent. eliminated, and rubric reads—"It yields not more than 1 per cent. of water-insoluble residue and not more than 15 per cent. of moisture."

Slight change in size of tears. It now reads: "Spheroidal tears up to *32 mm. in diameter.*"

Aconitum.—Total ash eliminated and now brought under General Standard as to acid-insoluble ash. "Aconite contains not more than 5 per cent. of stems or other foreign organic matter."

Slight change in thickness of root. It now reads: "1 to 3.5 cm. in diameter at the crown."

Slight change in size of starch grains. It now reads: "from 0.003 to 0.020 mm. in diameter."

Agar.—Nomenclature of definition changed—"Agar is the dried mucilaginous substance extracted from *Gelidium corneum* (Hudson) Lamouroux and other species of *Gelidium*, and associated Algae."

Rubric changed to read: "Agar contains not more than 1 per cent. of organic foreign matter nor more than 1 per cent. of acid-insoluble ash nor more than 16 per cent. of moisture."

Aloe.—New Test: "Intimately mix for two hours about 1 Gm. of powdered Aloe with 25 cc of cold water, filter and wash with cold water to make the filtrate up to 100 cc. The residue on the filter, dried over sulphuric acid, should not exceed in weight 50 per cent. of the weight of powdered Aloe taken. The color of the filtrate of Socotrine Aloe, viewed in the bulb of a 100-cc volumetric flask is light yellowish-brown, reddish-brown with Curaçao Aloe and yellowish with Cape Aloe. The filtrate darkens upon standing."

New test for distinction of commercial varieties: "To 5 cc of the filtrate mentioned above, add 2 cc of nitric acid; the mixture is of a yellowish to yellowish-brown color with Socotrine Aloe; a deep red color Curaçao Aloe, a reddish-brown color changing to vivid green with Cape Aloe."

Althaea.—No change.

Amylum.—Moisture percentage added to rubric—"Nor more than 14 per cent. of moisture."

New test. "Add 10 cc of distilled water to 1 Gm. of Starch and acidify with 0.5 cc of hydrochloric acid. The mixture should yield no blue color within five minutes on the addition of 3 drops of potassium ferrocyanide T. S. (*iron*)."

Asafoetida.—Limitations to species of Ferula indigenous to Persia and adjacent countries eliminated—"Asafoetida is the gum-resin obtained by incising the living rhizomes and roots of *Ferula Asafoetida* Linné and *Ferula Faetida* Regel and of other species of Ferula (Fam. *Umbelliferae*)."

Rubric changed and the standard the same for the resin as the powder—"Asafetida yields not less than 50 per cent. of alcohol-soluble constituents, not more than 15 per cent. of acid-insoluble ash."

Aspidium.—Definition simplified—"Aspidium, is the rhizome and stipes of *Dryopteris* Filix-mas (Linné) Schott (Fam. *Polypodiaceae*)."

Purity rubric changed: "Aspidium yields not less than 6.5 per cent. of oleoresin nor more than 3 per cent. of ash."

Structure amplified—"*Structure.* Externally a row of epidermal cells; and several rows of brown, thick-walled hypodermal cells; parenchyma with intercellular spaces into which project characteristic glandular hairs; vascular bundles bicollateral, each surrounded by an endodermis, the tracheae large, sclariform or reticulate; starch abundant, ellipsoidal or irregular, 0.002 to 0.025 mm. in length."

Aurantii Amari Cortex.—Total ash eliminated and rubric brings it under General Standards. "In thin, irregular bands (ribbons) or elliptical, somewhat curved and acutely pointed pieces (quarters) with recurved edges; outer surface yellowish or reddish or greenish-brown with numerous, minute pits and fine reticulate ridges; inner surface whitish with many slight conical projections and fine anastomosing lines formed by the vascular bundles; fracture hard, short; odor fragrant and aromatic; taste aromatic and bitter."

Structure amplified—"*Structure.* An outer epidermis of small, angular cells; an outer parenchyma of thick-walled cells containing chloroplasts or chromoplasts and occasionally calcium oxalate prisms, and bearing the large oil reservoirs, arranged mostly in 2 irregular rows; an inner spongy parenchyma of branched cells surrounding large intercellular spaces, and bearing delicate, anastomosing vascular bundles."

Length of crystals changed to maximum size of "to 0.045 mm. long."

Belladonnae Folia.—Rubric changed—"Belladonna Leaves contain not more than 3 per cent. of stems over 10 mm. in diameter and yield not more than 3 per cent. of acid-insoluble ash."

Size of seeds included in description—"Seeds, up to 2 mm. in width."

Structure extended—"*Structure.* Leaves of simple structure; epidermis with sinuate vertical walls and distinctly striated cuticle; stomata more numerous on the lower surface and usually with 3 neighboring cells; non-glandular hairs 2–6 celled; glandular hairs, short-stalked with one-to-many-celled heads; crystal cells large, filled with micro-crystalline calcium oxalate and numerous in the mesophyll. Raphides are wanting (absence of *Phytolacca leaves*)."

Statement of characteristics of the powder referred to the structure as shown in the following verbiage: "*Powder,* Green to brownish-green in color. The following are among the elements of identification; the separate micro-crystals, the dark gray crystal cells, the cuticular striping of the epidermal cells, the tracheae with bordered pores, the bast and wood fibers of the stem, the fibers and, rarely, the hairs and pollen grains."

Belladonnae Radix.—"Total ash eliminated and replaced by acid-insoluble ash, the quantity of which is not more than 4 per cent."

"Maximum of root increased from 2.5 cm. to 4 cm."

Structure simplified—"*Structure.* Cork, a few layers of thin-walled cells; large crystal cells, filled with micro-crystalline calcium oxalate, and relatively numerous in the younger roots, scattered through the abundant, starch-bearing parenchyma of the bark and wood; large porous or reticulate tracheae in scattered groups and, in the older roots, associated with wood fibers; cambium layer conspicuous; the medullary rays 1 to 5 cells wide."

Benzoinum.—Test of solubility in alcohol given more fully—"Treat about 1 gram of Benzoin with 25 cc of boiling alcohol, filter, wash the filter with 10 cc hot alcohol, and dry the residue; the insoluble portion of Siam Benzoin does not exceed 10 per cent.; that of Sumatra Benzoin does not exceed 25 per cent.; in both cases the alcoholic filtrate becomes milky upon the addition of water and is acid to litmus."

Test with ether added—"Treat about 0.25 Gm. Benzoin with 5 cc of ether, decant about 1 cc of the ethereal solution into a porcelain dish and add to it 2 or 3 drops of sulphuric acid; the

solution of Sumatra Benzoin produces a deep red-brown coloration of the sulphuric acid; the solution of the Siam Benzoin produces a deep purplish-red coloration."

Permanganate test restored. "Heat about 0.5 Gm. of Benzoin in a test-tube with 10 cc of potassium permanganate T. S.; Sumatra Benzoin develops an odor of benzaldehyde; Siam Benzoin does not develop an odor of benzaldehyde."

Buchu.—Barosma crenulata added as a source of Short Buchu.

Rubric—amount of stems decreased to 8 per cent.

Size of leaf of Short Buchu increased—from 9 to 30 mm. in length and 4 to 20 mm. in breadth.

Breadth of leaf of Long Buchu is increased from 4 to 10 mm. in breadth.

Structure considerably lengthened—"*Structure.* Cuticle thick, somewhat uneven and striated. Hairs few, simple, one-celled, non-lignified up to 0.145 mm. in length (Short Buchu) or 0.180 mm. in length (Long Buchu). Stomata wanting on the upper surface, numerous on the lower surface, broadly oval, up to 0.040 mm. in length and surrounded by from 4 to 6 neighboring cells. Epidermal cells with inner walls mucilaginous and containing colorless sphero-crystals or crystal aggregates of Hesperidin, which strongly polarize light, the latter form giving a brilliant display of colors. A single row of large hypodermal cells beneath the upper epidermis containing mucilage and frequently brownish, feather-like crystal aggregates. Palisade cells in a single row below the mucilage cells, and bordering a loose mesophyll, the cells containing numerous plastides and a few rosette aggregates of calcium oxalate. Oil cavities circular in outline, with globules of oil and occurring mostly near the margin of the leaf."

"Fibro-vascular bundles of midrib and larger veins collateral, in crescent-shaped groups composed chiefly of tracheae, sieve tubes and non-lignified fibers and separated by colenchyma from the lower epidermis."

"Powder now included but based on structure. *Powder.* Light green; elements of identification are epidermal cells containing sphero-crystals or crystal aggregates of Hesperidin, rosette aggregates of calcium oxalate from 0.015 to 0.030 mm. in diameter, the few simple hairs, the numerous stomata of the lower epidermis, the oil secretion cavities and oil globules, and fragments of the fibro-vascular bundles."

Calumba.—Total ash replaced by—"Calumba yields not more than 2.5 per cent. of acid-insoluble ash."

Size increased to 10 cm. in diameter.

Structure inserted—"*Structure.* A thick corky layer of small cells with yellowish walls; a starch-bearing parenchyma layer with a few characteristic stone cells scattered singly or in small groups; the numerous, narrow wood bundles distinct and separated by broad, starch-bearing medullary rays; the phloem portion consisting of sieve with cells mostly collapsed; the xylem portion of tracheae and wood fibers frequently in small groups separated by starch-bearing parenchyma, especially in the inner portion."

Cambogia.—Purity rubric now includes standard for foreign organic matter and acid-insoluble ash—"Camboge contains not more than 1 per cent. of foreign organic matter and yields not more than 1 per cent. of acid-insoluble ash nor less than 65 per cent. of alcoholic extractive."

Cannabis.—"Size of crystals increased from 0.025 mm. to 0.030 mm. in diameter."

Cantharis.—No change.

Capsicum.—Botanical name changed and definition now reads: "Capsicum is the dried, ripe fruit of *Capsicum frutescens* Linné (Fam *Solanaceae*)."

Non-volatile ether extractive reduced to 14 per cent.

Diameter reduced to 8 mm. as maximum.

Number of seeds in pod increased to 20.

Extended histological description added—"*Structure.* Outer epidermis of mostly quadrangular cells 0.020 to 0.080 mm. long, 0.020 to 0.045 mm. wide and 0.015 to 0.020 mm. deep, arranged in regular rows, with thickened and cutinized outer and radial walls, the surface of the cuticle finely striated, the radial walls somewhat wavy but very slightly beaded; mesocarp of thin-walled parenchyma containing reddish-yellow oil globules; endocarp of elongated cells, some of them very thin-walled, others, in large oval areas, with thickened, beaded lignified walls. Seed epidermal cells irregular in outline up to 0.250 mm. long, with very wavy, contorted, lignified walls, those cells from the edge of the seed much thicker walled than those from the flat surface

of the seed. Embryo curved and embedded in the endosperm which consists of small, thin-walled parenchyma, containing small aleurone grains and fixed oil."

Elimination of Japanese or East Indian Capsicum. "Fragments of pericarp with outer epidermis consisting of irregular cells up to 0.100 mm. long, not arranged in regular rows and with strongly beaded radial walls and with a hypodermis of angular cells with thickened, beaded walls, should be absent (*Japanese or East Indian Capsicum*)."

Pungency test for identification added—"Mix well 1.0 Gm. of powdered Capsicum in 50 cc of alcohol in a stoppered flask and macerate for 24 hours; dilute 0.1 cc of the clear, supernatant liquid with 140 cc of distilled water containing 10 per cent. of sugar; 5 cc of this dilution swallowed at once will produce a distinct sensation of pungency and taste of capsicum in the mouth and throat."

Cardamomi Semen.—Change in botanical name of plant in definition. "Cardamom Seed is the dried seed of *Ammomum Cardamomum* Linné (Fam. *Zingiberaceae*)."

Size of calcium oxalate in reserve cells of seed given as follows: "Containing one or more prisms of calcium oxalate 0.010 to 0.025 mm. in diameter."

Carum.—No change.

Caryophyllus.—Change in the botanical name in the definition—"Clove is the dried flower-buds of *Caryophyllus aromatica* Linné (Fam. *Myrtaceae*)."

Volatile ether extract increased to 15 per cent.; insoluble ash increased to 0.75 per cent.

Cimicifuga.—Ash statement changed—"and yields not more than 4 per cent. of acid-insoluble ash."

Length of Roots stated—"3 to 12 cm."

Cinchona.—Structure amplified—"*Structure.* Cork, frequently bearing dense masses of lichen tissues on its outer surface, consists of rectangular, thin-walled cells with brown contents; parenchyma brown-walled, usually containing starch grains, single or 2–5 compound, up to 0.020 mm. in diameter, but some widely scattered cells are filled with calcium oxalate microcrystals; laticiferous ducts widely separated in a single row near the inner edge of the primary bark, circular or oval in transverse section, up to 0.120 mm. in diameter; medullary rays usually 1 to 3 cells wide with rectangular thin-walled cells, frequently tangentially elongated in the outer part of the ray; bast fibers numerous, isolated or in small bundles between the medullary rays, spindle-shaped, 0.300 to 1.350 mm. long, 0.050 to 0.135 mm. wide, with thick, strongly lignified lamellated walls having numerous simple or branched pores."

Cinchona Rubra.—No change.

Cinnamomum.—Specific name of species is given—"Cinnamon is the dried bark of *Cinnamomum Loureirii* Nees (Fam. *Lauraceae*)."

Coccus.—No change.

Colchici Cormus.—No change.

Colchici Semen.—"Increase in size of starch grains to 0.020 mm. in diameter."

Colocynthidis Pulpa.—No change.

Coriandrum.—No change.

Cubeba.—No change.

Digitalis.—Maximum size of leaf reduced to 25 cm. in length.

Anatomical description inserted. "*Structure.* Upper epidermis with slightly sinuate vertical walls, no stomata, and numerous hairs, lower epidermis with sinuate vertical walls, numerous oval stomata and many hairs and not attached over irregular areas to the cell layer within, especially near the veins; chlorenchyma of a single layer of short palisade cells and several layers of mesophyll; vascular bundles of larger veins and petiole, numerous, separated by medullary rays one cell wide."

Ergota.—Histological description introduced—"*Structure.* A thin outer portion of small compact cells generally deep violet in color and which turn red with sulphuric acid (50 per cent.) or with chloral hydrate T. S.; the inner portion, simulating parenchyma tissue, of thin-walled colorless cells usually less than 0.015 mm. wide but slightly elongated and containing numerous globules of fixed oil."

Erodictyon.—Description of Powder introduced—"*Powder.* Greenish; non-glandular hairs 1-celled stalk and 6 to 8-celled heads, the latter up to 0.075 mm. in diameter; tracheae with spiral thickenings or simple pores and associated with lignified fibers; starch grains few,

0.003 to 0.020 mm. in diameter; calcium oxalate crystals numerous, in rosette aggregates from 0.005 to 0.030 mm. in diameter."

Eucalyptus.—Description of powder introduced. "*Powder.* Light green; containing fragments of epidermis with nearly invisible stomata because of the thickened cuticle; fragments of chlorenchyma with broken oil reservoirs; fragments of brownish cork; long, slightly lignified bast fibers associated with small dotted tracheae; calcium oxalate in rosettes or prisms, 0.015 to 0.025 mm. in diameter."

Galla.—Definition simplified—"The gall on the young twigs of *Querous infectoria Olivier* and other allied species of *Querous* (Fam. *Fagaceae*)."

Histological description inserted—"*Structure.* The external and largest part of the gall consists of thin-walled parenchyma cells, containing masses of tannin and occasionally rosettes and prisms of calcium oxalate; a middle layer of thick-walled stone cells and an inner layer of thick-walled parenchyma containing starch granules with occasionally small globules of fatty oil."

Test for tannin in nutgall with ferric chloride T. S. omitted.

Gambir.—Alcoholic and aqueous extractives increased. "Gambir yields not less than 70 per cent. of aqueous extractive nor less than 65 per cent. of alcoholic extractive."

Cold water extractive added. "Gentian yields not less than 30 per cent. of cold extractive."

Thickness increased to 40 mm.

Histological description introduced. "*Structure.* Cork four to six rows of thin-walled cells; hypodermis of several rows of thick-walled cells; inner bark of many layers of more or less tangentially collapsed parenchyma and numerous sieve bundles and separated from the wood by a distinct cambium ring; medullary rays indistinct; wood rays consisting of a few large tracheae scattered through an abundance of brown thin-walled parenchyma."

Glycyrrhiza.—Botanical names changed slightly. "Glycyrrhiza is the dried rhizome and roots of *Glycyrrhiza glabra* Linné, known in commerce as Spanish Licorice or of *Glycyrrhiza echinata* Linné, known in commerce as Russian Licorice (Fam. *Leguminosae*)."

Names related commercial varieties no longer specified under Spanish Licorice.

Maximum size of crystals of calcium oxalate increased to 0.030 mm.

Granatum.—"Total ash 16 per cent. replaced by admission to General Standards. Pomegranate Bark contains not more than 2 per cent. of wood or other foreign organic matter."

Histological structure introduced. "*Structure.* Cork thin, of alternating rows of thin-walled suberized cells and lignified cells with greatly thickened inner walls; primary cortex of parenchyma with a few large stone cells; isolated or in small groups; medullary rays mostly one cell wide; rosette aggregates of calcium oxalate very numerous in the parenchyma."

Hydrastis.—Ash standard introduced, "yields not more than 3 per cent. of acid-insoluble ash."

Hyoscyamus.—Purity rubric changed—"Hyoscyamus contains not more than 25 per cent. of its stems and none should be more than 7 mm. in thickness; and yields not more than 12 per cent. of acid-insoluble ash nor less than — per cent. of the alkaloids of Hyoscyamus."

Histological structure introduced—"*Structure.* Leaves: one layer of palisade with frequent large intercellular spaces; the upper row of mesophyll cells with prisms or rosette aggregates of calcium oxalate; in the midrib a girdle of collenchyma about the vascular bundle and the parenchyma occasionally with sphenoidal micro-crystals of calcium oxalate. Stems: Cortex thin, wood with numerous tracheae and lignified fibers, follow with a few pith parenchyma. Seed: campylatropous, the coat strongly reticulated, with curved embryo embedded in the endosperm."

Epidermal cells no longer described and size of stomata not retained.

Size of micro-crystals given as follows: "0.006 to 0.012 mm."

Size of pollen grains eliminated.

Ipecacuanha.—Botanical origins of both commercial varieties of Ipecac now referred to C. Ipecacuanha. "Ipecac is the dried root of *Cephaelis Ipecacuanha* (Brotaetro) A. Richard, known in commerce as Rio Ipecac (Brazillian Ipecac) or as Cartagena Ipecac. (Fam. *Rubiaceae*)."

Histological Structure of Rio Ipecac is now given. "*Structure of Rio Ipecac Root.* Outer layer dark brown, consisting of several layers of cork cells some showing distinct granular masses of protoplasm covering the tangential walls bark grayish-white, consisting chiefly of parenchyma cells filled with starch grains, a few containing raphides of calcium oxalate; wood cylinder light

yellow, consisting of tracheids with bordered or slit-like pores, modified medullary rays of prosenchymatic cells containing starch grains, not exceeding 0.010 mm. in diameter and a few lignified fibers with oblique slit-like pores and more or less attenuated ends."

Cartagena Ipecac is described being referred to Rio Ipecac. "*Cartagena Ipecac.* As compared with Rio Ipecac, from 4 to 6.5 mm. in thickness; externally grayish-brown; annulations less numerous; single starch grains, in the average, larger in the medullary rays of the wood."

Size of starch grains and calcium oxalate increased. "The starch grains single and up to 5- to 7-compound, the single grains up to 0.020 mm. in diameter, raphides of calcium oxalate up to 0.050 mm. long."

Ipomoea.—(To replace Scammony Root):

IPOMOEA.
Ipomoea Root.

Mexican Scammony Root. Levant Scammony.

Ipomoea is the dried root of *Ipomoea orizabensis* Ledenois (Fam. *Convolvulaceae*).

Ipomoea yields not less than 15 per cent. of total resin, nor more than 3 per cent. of acid-insoluble ash.

In nearly flattened transverse slices, from 2 to 12 cm. in diameter and from 1 to 5.5 cm. in thickness; externally light to dark brown, very deeply wrinkled; fracture tough, fibrous; inner surface light brown, showing concentric rings from which coarse fibers protrude; odor, distinct, somewhat aromatic, taste slightly sweet, becoming somewhat acrid.

Structure. A corky layer consisting of several rows of brownish, thin-walled, narrow tabular cells; outer cortex of several layers of colorless, thin-walled cells; a broad cortical layer made up of thick-walled, tangentially elongated cells, containing either starch grains or crystals of calcium oxalate and numerous large brownish resinous laticiferous cells; alternate rings or zones of collateral fibrovascular bundles separated by broad medullary rays; sieve in somewhat hemisperical strands outside of the wood wedges; resinous laticiferous cells numerous and distributed throughout the parenchyma and medullary rays; the parenchyma both in and surrounding the bundles more or less collapsed and containing either starch or calcium oxalate crystals.

Powder. Light grayish-brown; starch grains from 0.003 to 0.035 mm. in diameter, mostly single, also 2- to 4- compound and usually with a central cleft; calcium oxalate crystals numerous, mostly in rosette aggregates, occasionally in the form of rhombohedra, from 0.010 to 0.045 mm. in length; fragments of yellowish-brown resin cells; tracheae mostly with simple pores and associated with numerous thick-walled wood fibers with bordered pores."

Jalapa.—Yield of resin increased to 9 per cent. "Jalap yields not less than 9 per cent. of the total resins of Jalap."

Histological structure introduced. "*Structure.* Cork of several or many rows of small, thin-walled brownish cells; cortex narrow; fibro-vascular bundles small, numerous, arranged in several concentric zones, bicollateral, each bundle with 2 or 3 tracheae, several small groups of sieve tissue and inconspicuous cambium except in the outermost zone where the cambium is conspicuous, with 6 to 10 rows of cells and forming a complete circle; parenchyma abundant, starch-bearing, with numerous, large latex cells scattered through it."

Kino.—Purity rubric changed. "Kino yields not less than 70 per cent. of alcoholic extractive, not less than 90 per cent. of aqueous extractive."

KRAMERIA.
Krameria.

Rhatany.

Krameria.—Krameria is the dried rot of *Krameria triandra* Ruiz et Pavon, known in commerce as Peruvian Rhatany, or of *Krameria argentea* Martius, known in commerce as Para or Brazilian Rhatany (Fam. *Leguminosae*).

Peruvian Rhatany. Crown knotty, several to many-headed, with numerous branching roots; the latter up to 50 cm. in length and usually less than 1 cm. in thickness, cylindrical or somewhat tapering, flexuous or wavy, externally light reddish-brown or brownish-red, more or less marked with darker scaly cork especially in the upper portion, somewhat longitudinally wrinkled but devoid of transverse fissures; fracture of bark slightly fibrous, of wood tough and splintery; the bark

pinkish-brown internally and less than one-third of the residue, the wood yellowish or pinkish-white and finely radiate; inodorous; bark astringent, wood nearly tasteless.

Para Rhatany. Roots usually separate from the crown, less flexuous, tapering, tough and internally darker in color than those of Peruvian Rhatany, and usually not exceeding 12 mm. in thickness; externally purplish-brown or chocolate-brown and marked with numerous fissures; the bark about two-fifths or more of the radius.

Powder. Reddish-brown, starch grains, single or 2- to 4-compound, the individual grains spherical, ellipsoidal, or plano-convex and sometimes with a central, radial, or starlike cleft, from 0.003 to 0.035 mm. in diameter; bast fibers more or less wavy in outline with very much attenuated ends and with non-lignified walls; tracheae with simple or bordered pores associated with numerous wood-fibers which are now narrow, spindle-shaped and with thick, porous, slightly lignified walls; numerous cellular fragments with yellowish or reddish-brown walls; calcium oxalate in monoclinic prisms, 0.010 to 0.100 mm. in length, and occasionally in spherical micro-crystals.

Limonis Cortex.—Microscopical description eliminated.

Linum.—No change.

Lobelia.—8 per cent. of total ash replaced by 5 per cent. of acid-insoluble ash.

Lycopodium.—No change.

Manna.—Standard for Mannite introduced in rubric.

Mentha Piperita.—Limit of size of stems as given in rubric changed. "Peppermint contains not more than 10 per cent. of stems over 1 mm. in diameter."

Description of Powder introduced. "*Powder.* Green, fragments of lead epidermis with wavy vertical walls and, if from the lower surface of the leaf, with numerous oval stomata and glandular and non-glandular hairs, especially along the veins; glandular hairs with a 1- to 2-celled stalk and 1- to 8-celled head usually set in a depression in the leaf and containing a volatile oil; non-glandular hairs with thin, papillose walls, 1 to 8 cells long, the terminal cell pointed or sometimes globular; fragments of chlorenchyma with vascular tissue, the tracheae spiral or with simple pores and but slightly lignified; fragments of collenchyma and of thin-walled, non-lignified fibers associated with parenchyma; pollen grains spheroidal and smooth."

Mentha Viridis.—Limit of size of stems as given in rubric changed—"Spearmint contains not more than 10 per cent. of stems over 1 mm. in diameter."

Myristica.—Modification in definition. "Myristica is the dried ripe seed of *Myristica fragrans* Houtuyn (Fam. *Myristicaceae*) deprived of its seed coat and with or without a thin coating of lime."

Introduction of some of the important government standards in the rubric. "Myristica yields not less than 25 per cent. of non-volatile ether extractive nor more than 0.5 per cent. of acid-insoluble ash."

Myrrha.—Definition changed as follows: "Myrrh is a gum-resin obtained from *Commiphora* (Fam. *Burseraceae*)."

Rubric now applies to gum resin as well as powder. Resin content reduced to 30 per cent. and acid-insoluble ash is now 4 per cent. "Myrrh yields not less than 30 per cent. of alcoholic extractive nor more than 4 per cent. of acid-insoluble ash."

Description of powder very much condensed as follows: "*Powder.* Yellowish-brown; consisting of numerous angular fragments of resin and gum, a few fragments of lignified tissue and a very few starch grains."

Nux Vomica.—No change.

Opium.—No change.

Opii Pulvis.—No change.

Pepo.—Rubric gives allowance of defective or ungerminating seeds as follows: "Pepo contains not more than 5 per cent. of defective seed or other foreign organic matter."

Podophyllum.—Limit of size of starch grains increased to 0.020 mm.

Prunus Virginiana.—Thickness of bark increased to 8 mm.

Size of rosette aggregates increased to 0.075 mm.

Size of starch grains changed to 0.002 to 0.015 mm. in diameter.

Pulvis Glycyrrhizae Compositus.—No change.

Pulvis Ipecacuanhae et Opii.—No change.

Pulvis Jalapae Compositus.—No change.

Pulvis Rhei Compositus.—No change.

Quassia.—No change.

Rhamnus Purshiana.—Title changed from Cascara Sagrada.

Age limit in former editions of U. S. P. restored. "Rhamus Purshiana should be collected at least one year before being used for making medicinal preparations."

Size of Calcium oxalate crystals changed. "Calcium oxalate in monoclinic prisms or rosette aggregates from 0.006 to 0.020 mm. in diameter."

Rheum.—Maximum size of starch grains increased to 0.025 mm. in diameter.

Test for detection of Rhapontic Rhubarb given. Powdered Rhubarb, upon the addition of alkalies, becomes red.

"Boil 10 Gm. of powdered Rhubarb for 15 minutes with 50 cc of diluted alcohol under a reflux condenser, filter and concentrate to 10 cc; cool, shake with 15 cc of ether and set aside for 24 hours. Yellowish, prismatic crystals should not form at the junction of the liquids (absence of *Rhapontic Rhubarb*)."

Tests for emodin and Chrysophanic acid are dropped.

RHUS GLABRA.

Rhus Glabra.

Sumach Berries.

Rhus Glabra is the dried, ripe fruit of *Rhus glabra* Linné (Fam. *Anacardiaceae*).

Rhus Glabra contains not more than 5 per cent. of stems or other foreign organic matter.

Flattened ovoid, nearly globular or somewhat reniform; 3.5 to 5.5 mm. long, nearly as broad, but usually somewhat less in thickness; a raised scar at the apex and the five-parted calyx with a short pedicel occasionally at the base; externally dark red, velvety with short hairs; endocarp smooth shiny, crimson to yellowish-red; 1-locular, 1-seeded; seed brown, very hard, almost tasteless; inodorous; taste acidulous and astringent.

Powder. Brownish-red; non-glandular hairs numerous, elliptical, ovoid or spatulate, 0.125 to 0.300 mm. in length and 0.045 to 0.080 mm. in width, usually several-celled, uniseriate, the cells filled with pink or red sap in which occasionally occur red-shaped crystals; also a few, slender, one-celled, colorless, non-glandular hairs; glandular hairs numerous, brownish or brownish-red, with short, one-celled stalks and multicellular heads, from 0.45 to 0.085 mm. in length; fragments of red-celled epicarp with adhering mesocarp having spiral tracheae; stone cells of endocarp very small and with irregularly thickened walls; fragments of embryo with small angular cells containing aleurone and fixed oil.

Rosa Gallica.—Histological description deleted.

Sassafras.—Length of Calcium oxalate in raphides stated—"up to 0.150 mm. in length."

Santalum Rubrum.—No change.

Sarsaparilla.—Rubric added to—"Sarsaparilla contains not more than 2 per cent. of foreign organic matter."

"Mexican Sarsaparilla yields not more than 4 per cent. of acid-insoluble ash, the other official varieties conforming to the General Standards."

Scammoniae Radix.—Replaced by Ipomoea, which see.

Scilla.—No change.

Senega.—"Test for detection of Methyl Salicylate deleted."

Senna.—Name "Tinnevelly" replaces "India."

Histological structure introduced. "*Structure.* Epidermal cells polygonal, with straight walls and frequently containing mucilage; stomata numerous, broadly elliptical, mostly 0.020 to 0.035 mm. long, usually bordered by 2 neighbor-cells with their long axes parallel with that of the stoma, and rarely, though more frequently in Alexandria Senna, a third epidermal cell at the end of the stoma; hairs non-glandular, 1-celled, conical, often curved, with thick papillose walls, from 0.100 to 0.350 mm. long; palisade cells in a single layer underlying both surfaces; calcium oxalate in rosette aggregates in the mesophyll parenchyma and in 6 to 8 sided prisms in crystal fibers, surrounding the conducting tissues of the veins."

Size of calcium oxalate crystals changed. "Free calcium oxalate rosettes and prisms 0.010 to 0.020 mm. in length."

Serpentaria.—Ash standard introduced in rubric. "Serpentaria consists of not more than 10 per cent. of its stems or other foreign organic matter; and yields not more than 10 per cent. of acid-insoluble ash."

Powder description introduced. "*Powder.* Grayish brown; starch grains numerous, single and 2- to 4-compound, the individual grains more or less spherical or plano-convex, frequently with a central cleft and from 0.003 to 0.018 mm. in diameter; lignified elements numerous, consisting of tracheae, wood-fibers, medullary ray cells and pith cells; occasionally a few non-glandular hairs from the stem."

Sinapis Nigra.—Botanical origin in definition—"Black Mustard is the ripe seed of *Brassica nigra* (Linné) Kock and *Brassica juncea* (Linné) Cosson and varieties related to these species (Fam. *Cruciferae*)."

Standard based on amount of volatile oil of mustard now given in rubric. "Black Mustard consists of not more than 5 per cent. of other seeds or other foreign organic matter; and yields not less than 0.6 per cent. of volatile oil of mustard (calculated as allylisothiocyanate)."

Stramonium.—Rubric changed—"Stramonium contains not more than 3 per cent. of stems over 8 mm. in diameter and yields not more than 4 per cent. of acid-insoluble ash."

Size of leaves eliminated.

Histological description included. "*Structure.* Upper epidermis of thin-walled cells, with few stomata and trichomes; palisade, 1-rowed, and resting upon a single row of small parenchyma cells extending through the middle of the blade, nearly every cell of the layer containing a rosette aggregate of calcium oxalate; spongy parenchyma loosely arranged; lower epidermis similar to the upper but more uneven and with more stomata, the latter slightly elevated and with guard cells nearly circular in outline and distinctly beaked. At the midrib and larger veins, epidermis walls thickened; a characteristic ridge of collenchyma just beneath the upper epidermis, large, rounded parenchyma cells with intercellular spaces; a bicollateral radial vascular structure with narrow, medullary rays; calcium oxalate in the form of prisms, rosette aggregates and sphenoidal crystals."

"Maximum size of crystals now 0.025 mm. in diameter."

Strophanthus.—Size of seeds now given. "*Strophanthus Kombe.* Oblong-lanceolate, flattened and obtusely edged; 8 to 25 mm. long, 2.5 to 5 mm. broad and 0.5 to 2 mm. thick.

"Size of starch grains 0.004 to 0.008 mm. in diameter."

Tragacantha.—No change.

Ulmus.—Histological structure now given. "*Structure.* Bast fibers in small bundles arranged in numerous tangential rows alternating with rows of mucilage cells, the latter from 0.100 to 0.400 mm. in diameter; medullary rays 4 to 6 cells wide and bearing starch; sieve containing elongated tapering cells with porous walls and parenchyma cells containing starch or prismatic monoclinic crystals or twin crystals of calcium oxalate, the crystal cells frequently so elongated and the crystals superimposed as to form short, non-lignified crystal-fibers."

Size of crystals increased. "Calcium oxalate prisms 0.010 to 0.035 mm. long. Size of starch grains increased, usually 0.003 to 0.015 mm."

Uva Ursi.—Size stomata increased. "Stomata about 0.040 mm. in length."

Size of crystals increased. "Monoclinic prisms, from 0.006 to 0.030 mm. in diameter."

Valeriana.—Ash standard changed—"Valerian yields not more than 10 per cent. of acid-insoluble ash."

Veratrum Viride.—Ash standard introduced—"Veratrum Viride contains not more than 5 per cent. of stems or other foreign organic matter; and yields not more than 4 per cent. of acid-insoluble ash."

"Structure of endodermal cells. Endodermal cells with inner and radial walls thickened and slightly lignified; U-shaped cavity about one-third the cell width."

Zingiber.—Definition limited to Jamaica and African varieties. "Ginger is the dried rhizome of *Zingiber officinale* Roscoe (Fam. *Zingiberaceae*), known in commerce as Jamaica Ginger or African Ginger."

Rubric changed—"Jamaica Ginger yields not less than 15 per cent. of cold water extract. African yields not less than 12 per cent. of cold water extract."

Histological description introduced. "*Structure.* Chiefly thin-walled, starch-bearing parenchyma cells; numerous scattered secretion cells and small vascular bundles; the latter very numerous adjacent to the inner face of the narrow endodermis secretion cells, similar in size and shape to the parenchyma cells and with yellowish or orange-colored oil or oleo-resin or reddish-brown resin; vascular bundles collateral, with a few tracheae, small phloem cells and usually accompanied by fibers lying on the inner face or completely surrounding the vascular tissues; cork of several or many rows of cells in African Ginger."

HOUSE OF DELEGATES, AMERICAN PHARMACEUTICAL ASSOCIATION.

ABSTRACT OF THE MINUTES OF THE SESSIONS HELD IN KENILWORTH INN, ASHEVILLE, N. C., SEPTEMBER 4–7.

The first session of the House of Delegates with the first General Session of the American Pharmaceutical Association is reported in the October number of the JOURNAL A. PH. A., p. 893 *et seq.* The report of the Recording Secretary, Wm. B. Day, is printed on pp. 897–899. The address of Chairman Evander F. Kelly will be found on pp. 882–883 and the report of the Committee on Resolutions in brief is printed on pp. 906–909; see also pp. 1009, 1016, etc.

SECOND SESSION.

The second session of the House of Delegates was called to order by Chairman E. F. Kelly at 2:00 P.M., Wednesday, September 4. He announced that the address of the Chairman had been read at the first session and also the report of the Recording Secretary, and that a committee would be appointed later to consider these.

The next order of business was roll-call. The Recording Secretary stated that the names of delegates would be read according to the credentials submitted by the officers of the respective states. If any changes are necessary, these should be promptly reported. The California delegates were announced as Bruce Philip, Laird J. Stabler and A. R. Maas. The Secretary stated that William D. Jones, Townes R. Leigh and D. W. Ramsaur were present from Florida and that Curtis P. Gladding was in attendance from Connecticut.

The Chairman advised that delegates from departments of the U. S. Government had the privileges of the floor and of the meeting.

The reading of the list of delegates was dispensed with.*

Major von Zelinski of the U. S. Army was introduced. He stated that he was a pharmacist and felt honored to have known many who were and are active in the Association, and then spoke, in part, as follows:

"The Surgeon General is very desirous of having the coöperation of the American pharmaceutical profession in the building up of a reserve corps of pharmacists in the Army. It is the first time in the history of the Army that there has been a definite policy as to the members of the American Pharmaceutical Association who give all or part of their time to the National Army, the National Guard or the Organized Reserves. The Organized Reserves are made up of officers with a personnel taken from the various professions, like the dental, pharmaceutical, medical, engineering and many others.

"There are commissions available for graduate pharmacists in the Medical Administrative Corps; it is a part of the Medical Department just the same as the Medical Corps, and the Veterinary Corps, and the Dental Corps. It is proposed that we will secure the services or coöperation of pharmacists through this corps. The Administrative Corps has to do with the handling of medical supplies, the administrative work in hospitals—base and evacuation hospitals and other activities and departments of the Medical Department of the Army. The idea is to have the graduate pharmacists supplied with staff commissions who will get into this Administrative Corps. In order for the graduate pharmacist to get into this Corps and secure one of these commissions, application is usually made to the headquarters of the corps area.

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* See list at end of these minutes.

"The country is divided into nine areas; a communication to the Surgeon General's office in Washington will bring you the proper information. All the commissions for applicants for the Medical Administrative Corps come in the grade of second lieutenant and the highest grade for officers in this Corps to which a pharmacist may attain is that of captain. The junior entry grade is that of second lieutenant with few exceptions and those few exceptions are in the case of men who have had considerable experience. We differentiate between what is active experience or active service, and constructive service. In order to get the rating of constructive service a man may be conspicuous in his profession, he may have rendered unusual service in the war, or in the Council of National Defense or other body. That would be counted as constructive service in obtaining for him a higher rank.

"The Surgeon General is desirous of having young men in the service for he has a new method of training them by correspondence and also by calling them into active duty for short periods each year. This period will not exceed 15 days within a calendar year, depending upon the appropriations which are available at that time; it is not considered likely, at least not in the near future, that appropriations will be sufficient to call out every medical reserve officer for fifteen days of active service in a calendar year. The arrangements will be made by the Surgeon General, as far as possible, to meet the convenience of the individuals called out. It does not necessarily mean that when you are called upon for active duty, you must respond right away. There may be good and sufficient reasons why you cannot respond at the time you are called upon or come to the particular place to which you are called. These things are all taken into consideration. Promotion in the reserve corps depends upon constructive and active service; constructive service in this instance being the progress which has been made in the correspondence course, and also the active service, the amount of time that has been put in of actual service.

"It is understood that in the case of any eventuality, of any kind, those who hold those commissions will respond when they are called upon. We ask coöperation of those of you who are connected with schools of pharmacy, in bringing this matter to the attention of your graduating students, and also that you will take active interest in this matter. The Surgeon General's office is at all times prepared to give full and complete information and will appreciate evidence of your interest."

Major von Zelinski said he would gladly answer questions relating to the subject of his address, and thanked the convention for the opportunity given him.

William C. Anderson moved a vote of thanks and that the privileges of the floor be extended the speaker. In seconding the motion William B. Day said that he was pleased that the Major was a fellow-citizen; he had taught in a pharmacy school in Chicago and had the pharmaceutical viewpoint.

Chairman Kelly announced a unanimous favorable vote on the motion, and conveyed greetings to the department represented by Major von Zelinski.

The Chairman appointed the following committees:

Committee on Resolutions: Ambrose Hunsberger, H. M. Faser, H. M. Whelpley, Jeannot Hostmann, A. L. I. Winne.

Committee on Nominations: J. H. Beal, E. V. Zoeller, F. E. Mortenson, H. L. Meredith, T. J. Bradley, Bruce Philip.

Chairman Kelly stated that the program provided for discussions of interest to all delegates and that pharmacists in all states needed the aid and counsel of those present. The subject for discussion at this session was "The Limitations of the Ownership of Pharmacies to Pharmacists," that of a succeeding session would be "The Limitation of the Sale of Medicines to Pharmacies." The Chairman emphasized that the American Pharmaceutical Association always stands ready to help any movement, the purpose of which relates to the betterment of pharmacy and to public health matters.

Dr. Jacob Diner opened the discussion on "The Limitation of the Ownership of Pharmacies to Pharmacists."

LIMITATION OF OWNERSHIP OF PHARMACIES TO PHARMACISTS.

"As Chairman Kelly has pointed out," Dr. Diner said, "my remarks are for the purpose of opening a general discussion on the limitation of the ownership of pharmacies to pharmacists." After introducing his subject he continued, in part, as follows:

"In discussing the subject of limitation of pharmacies to pharmacists—one is necessarily confronted by a number of subdivisions, and a number of questions. First of all what does it mean? While it is reasonably clear, and quite generally true that the pharmacy is to be conducted by a pharmacist, in the majority of States there is a distinct provision in the law that permits the non-pharmacists to own pharmacies. That provision exists in all except two States, and in those two States it is limited by mere inference in its laws, and has been carried out by coöperation with the Boards of Pharmacy. The only way that we have, therefore, of limiting the practice of our profession is by passing limiting laws—as a public health movement. It will readily be admitted by us, no doubt, and generally conceded by the public at large that pharmacy is a profession. That being the case, in the majority of States, professions may not be practiced excepting by individuals duly licensed and qualified to practice their profession. The ownership of the business has been considered something entirely apart from the practicing of the profession only with reference to pharmacy. To illustrate: In the State of New York there were at one time a number of so-called dental parlors which were owned by laymen, and to some extent conducted by licensed and graduate dentists, but all the equipment was owned by these outsiders. Through the instrumentality of the Legislature of the State of New York, and with the aid of the Department of Education, a bill was passed which prohibited the operation or owning of a dental parlor by anyone who was not a licensed dentist, even to the extent of requiring that each dental chair operated in a dental parlor must bear the name of the licensed dentist operating that chair, and no one else could operate that chair. That line of action caused the elimination of dental parlors because they could not be conducted by laymen, nor by any persons not duly qualified to practice dentistry. The professions of medicine and law have always been respected, due to the individual licensing of the practitioner of that profession, even to the extent that an institution which was established in the State of New York was called upon to explain its existence and to modify its mode of operation, so as not to conflict with the practice of medicine. Our laws even go further for they have prescribed a course of education for a veterinary surgeon, and even architecture, nursing, and accountancy cannot be practiced by anyone except a licensed individual who has passed an official licensing examination, and under no condition by any outsider. Pharmacy alone was distinguished by being called a non-professional business. Somebody said recently that pharmacy was not a profession, and indeed you couldn't blame him, seeing the number of drug stores and pharmacies which are being operated by individuals who are unqualified to practice the profession of pharmacy. While that is a great detriment to pharmacy, it is a considerably greater detriment to public welfare.

"A layman doesn't know when he goes along the street and sees a sign 'drug store' or 'pharmacy' that anyone not a registered and licensed pharmacist conducts that pharmacy and dispenses medicinal products in such a store and, in reality, they are doing it under the misleading sign for in many instances there is no one in that store duly licensed by the State to conduct a pharmacy. It was for this reason that the State Pharmaceutical Association of New York instructed its Legislative Committee, at its annual session, to introduce the so-called "Pharmacy Ownership Bill." In our attempts to pass such a bill we studied the whole matter with the assistance of competent legal advisers and we found many things which had to be carefully and conscientiously considered—carefully, from the point of view of the legal aspects of the matter, and conscientiously, from the point of view of not injuring the citizens' rights and privileges, and not interfering with that which is legitimate. We felt sure that we had a fairly good bill, and being desirous to do right we submitted it for criticism to a number of men, and we met with the usual thing that we always meet with in legislative procedure, namely, the matter of fact that every pharmacist considered himself a much better lawyer than he is a pharmacist, and we were told of many objections to it, including the fact that it was unconstitutional. However, we proceeded with that measure and the law we proposed was defeated in 1921.

"In 1922 the meeting of the New York State Association again went definitely on record as in favor of imposing upon us the duty of concentrating upon that one measure and that one measure alone, and I want to emphasize that fact because I hope that many more States will follow suit until the entire United States has safeguarded its public by such professional measures; success depends largely on concentration—concentrate upon just one bill at a time and work on that point until gained before taking up another is the keynote for success. It is needless to say that every effort will be required to get one bill through. I trust I will be pardoned for going

into the details of the conditions existing in New York State during the last few years—we met with obstacles with which I trust those in other States will not be confronted. Our legislature was composed of a Democratic Governor, a State Senate with a Democratic majority of one, a Republican Assembly with a majority of twelve, and a Republican Speaker of the House—it seemed to be an unwritten law that whatever passed the Assembly must be defeated by the Senate, and whatever was urged by the Senate must be defeated by the Assembly and then, even if a bill was passed, the Governor was still to be reckoned with—he had to sign it, and it stood a very fair chance of being vetoed by the Governor. Fortunately, there were certain things brought about by these conditions in the State of New York, brought about by the Democratic attitude of our head of the State Health Department, which were of material assistance to us.

"The Public Health Inspector was trying to get through some legislation which was really the entering wedge and which just about suited us. He called the attention of the Governor to the fact of the existence of rural communities which were deprived of the medical assistance which they required, because the modern physician doesn't want to reside in a rural community, and the urgent need existing for the amelioration of that condition, and the way it was to be ameliorated was by the establishment of private hospitals managed by trained nurses, and under the direction of physicians who could be in the city and be in communication with these hospitals.

"One cannot say that a nurse is trained in the practice of medicine, but in order to cover this illegal practice of medicine it was provided that the nurse was to communicate with the physician when the patient was beyond the so-called medical knowledge of the nurse, and then the physician in the central hospital would send an ambulance and take that patient where he could be under the physician's personal direction, provided he could not deliver the proper instruction over the 'phone. It was taken up before a very representative body of medical men, and they recognized the need of competent pharmacy for the first time in the history of New York State. They recognized pharmacy as a part of the medical profession, and a committee was appointed for a conference representing both professions, and this committee was a sort of advisory board to the Governor. We studied the matter and found out what was necessary to be done and advised the Governor on the matter, and that was the entering wedge for the bill.

"As soon as our bill was introduced, opposition became active. It came from many sides, primarily from the pharmacists because they didn't read the bill or, having read it, failed to understand it. We held a number of meetings of local associations, both in the metropolitan district and in the State, and we organized everybody with whom we came in contact in those districts, forming new chapters, etc. We were after the one element which could be absolutely helpful to us, the Legislature. We went to them with our arguments as to why this bill should be passed, and we told them what the idea was of introducing this measure—that it was in the interest of public health and safety, and we obtained a great deal of publicity on that, through our publicity committee. We succeeded in getting into the newspaper columns—due to the efficient work, I am happy to state, of Mr. Clyde L. Eddy—over 1000 inches of good effective publicity in the daily press, including prominent editorials—to the effect that it was not a measure for our own benefit, nor was it used by the druggists in order to throw a fence around their own activities so that they would get all the business, that it was not a measure for the purpose of cheating the public, but that it was a measure for the benefit of the public and for public safety. We had in our Association a Republican senator, and we tried to get him to introduce the bill for us in view of the situation at the Capitol; he recommended that we get a Democratic senator to introduce it, and we were indeed fortunate enough to have in our society a man who was a pharmacist and a Democratic senator, Mr. Twomey, of Brooklyn. We induced him to introduce it in the Senate and to try and secure the approval of that body, and then we had to take it up with the chairman of the Assembly Health Committee in order to have the bill introduced there. We had agreed to let that bill go to the Assembly to be approved before passing it through the Senate, because if the law passed the Senate it was reasonably certain to fail of passage in the Assembly. However, through some condition which was beyond our control it became necessary to pass the bill in the Senate before it went through the Assembly where it was promptly passed within twenty-four hours. In less than an hour a motion to reconsider was made, and only by extreme effort did we succeed in getting that motion tabled, so as not to vote on the motion to reconsider, because it required 76 votes to pass that measure, and such a vote would have necessarily been fatal for our bill, because in passing that measure we were

aided by some Republican votes and passed it by one vote, and in doing so we had thought of no such motion as to reconsider, and we knew if it came to a re-vote, the Republicans would stand pat with their party and vote the measure down.

"I am speaking of the methods we pursued and the difficulties we had to face so that others will know just how to go about it. After this experience we decided to go after the assemblymen and acquaint the people with the proposed legislation. We sent out literature and letters to everyone concerned in the State of New York, giving them the important points of the matter and closing up with this illustration. If you have any children and your baby is sick and you get a prescription and take that to the drug store to be filled, do you know whether a pharmacist is in charge of that store or owns it? We sent out thousands of pounds of that literature, and conferred with the chairman of the Health Committee of the Republican Senate. We got the people to endorse our movement and we had a committee appointed in each district to send out letters and go around and interview the pharmacists in that district and explain any point that might not be clear to them. Right here, again, I want to say, emphatically, that the hardest man in the world to get coöperation from is the retail pharmacist. We had to send three and four and five form letters to each pharmacist, enclosing stamped addressed envelopes—we wanted their endorsement and yet they were too tired to even sign their names. We wanted the Senate and Assembly to know that the people wanted such a bill, but the only trouble was to get them to take the time to sign that statement which we had prepared for them. The clerk of the Assembly, when it was presented to the legislative body, told us that it had about as much chance as the proverbial snow-ball in Hades.

"We had assistance, however, from one source, which was very valuable. We had the medical men with us and at the beginning of that year the Medical Society of the State of New York passed a resolution urging physicians not to send any prescriptions to any pharmacy not owned and operated by a registered pharmacist; they also passed a resolution endorsing the bill which was being presented by the New York State Pharmaceutical Association and sent men to help us at the hearings before the Joint Senate and Assembly Health Committee on the matter. Then also there was another agency which could well be borne in mind and that was the voting public of New York State that employs pharmacists, physicians and dentists purely on the basis of requiring their immediate services and they do not hesitate to make a fight for what they think is best, and concentrate on their assemblymen until they get it. We had a hard time but when we ultimately succeeded in getting it before the Speaker we pointed out to him the fact that there were 15,000 of us behind this matter, and that each of that 15,000 could reasonably expect to control ten votes, with the result that roughly speaking we could control at least 150,000 votes and they might not feel disposed to elect to membership in the legislature or in the other public offices, such as Governor, at the next annual election, men who would not give them what they wanted, and that if he opposed it he could surely count on the natural consequences.

"We tried unsuccessfully a number of times to call up the bill on the floor, but we found that this was not possible. We finally obtained the consent of the Speaker to recognize our man on the floor and we waited to have the bill called up. For several days nothing was done about it and then on the very last day when we felt that the whole thing was about to fall through—about ten minutes before adjourning a very busy session—the Speaker sent for us and told us that he was going to insist upon an amendment to this bill which he would appreciate very much if we would accept. To accept the amendment to our bill within ten days before the adjournment of the Legislature meant disaster. The minute that we accepted an amendment it would mean that the bill would go back to the order of second reading and then an objection would necessitate a roll call, and would have meant its defeat. Our bill provided that hereafter there shall be no new pharmacies established except by registered pharmacists or by such corporations employing duly registered pharmacists who were then actively engaged in pharmacy. The Speaker of the Assembly wanted to put in a provision so that this could be gotten around in some way and such an amendment as that would have emasculated the bill even if we could have passed it with that amendment. We told him plainly that we would not accept the amendment, that we would insist upon the measure as it stood and so we had the bill called, and the opposition could not muster the 76 votes necessary to defeat it. The bill, therefore, was passed and went to Governor Smith for his signature. I had expected that he would sign that bill when it came before him without any further trouble on our part.

"One of the most radiant legal experts and a good Democrat was retained by the people on the opposition side to present a brief showing the illegality, the undesirability and the unconstitutionality of this bill. This takes us up to a Thursday afternoon when there was a conference between Senator Twomey, the Governor, the Secretary of the State Board of Pharmacy and myself, and we discussed the bill. We were told by the Governor to prepare a brief of what we were then stating and he expressed himself as being in favor of the measure.

"In the meantime the opposition had gotten very desperate, they had been working very hard against us for six or eight weeks and their final 'shot' was to ask for a hearing before the Governor. The opposition always has the right to ask for a hearing and such a hearing must always be granted by the Governor. The hearing was set for the following Saturday and I want to tell you that Saturday was a busy day. We telephoned to New York and sent telegrams all over the State and pretty soon we had a large number of pharmacists filing in from all over the State.

"The argument which the opposition put up was that we had tried to connive and conspire to increase the value of the Liggett stock—that was the first charge, and, secondly, that we had connived and conspired to put the retail pharmacist out of business, neither of which charges were true in any sense.

"The argument against the opposition was given to me. It was my privilege and pleasure to make that argument before the Governor. I asked Mr. Stuart Brown just on what ground he thought that a lot of men who did not look to be entirely devoid of intelligence would spend their time and money in order to safeguard the stock-holdings of the Liggett Corporation and I also answered with other points of my own. I have not sufficient time to go into that at present but anyway we won the argument and the bill was signed by the Governor and went into operation on April 24. You may ask what benefit that is going to be for the pharmacists, what it is going to do for the pharmacists. Well, in pointing out this advantage I will consider the most important advantage, first.

"First of all, by act of the Legislature pharmacy has been declared to be up to the standard of a profession in the State of New York and if we achieve nothing more than that we have achieved a great deal. The law in New York State always did provide that there must be a licensed pharmacist in charge of the pharmacy. We know, however, and we have all found out, that in some instances an owner of a drug store finds it cheaper to run the risk of paying a fine of $50 or $100 maybe three times a year—the inspector cannot be on the job all the time—and employ an unlicensed man than it is to hire a registered man and pay him what he should. He can pay an unregistered man a lower salary and pay his fines for him and still be ahead of the game at the end of the year. What do we do under this law? Some man—we will call him Mr. A.—not licensed as a druggist and his employee is an unregistered pharmacist and, we will say, at the end of the year, Mr. A. has from three to five violations to his credit. His application for annual registration for the store is denied by the Board of Pharmacy. Under the old rules having been convicted of a violation of Pharmacy Law and being unable to obtain store registration, he would have put Mrs. A.'s name on as owner of the store—who did not have any violations of the law charged against her—and she could have the store licensed even though Mr. A. had been refused such a license on that store.

"Then there are a few instances where a corporation wishes to incorporate a store employing duly registered pharmacists. They are provided for all right, their numbers are relatively few, but we managed to get rid of the great menace which was confronting us. There is no law in the world that can prevent anyone from conducting a legitimate business if it is honestly and uprightly done nor is there a law that cannot be gotten around in some way, but we have removed the worst feature of the menace.

"Now the constitutionality of that law might have been attacked on the basis that pharmacy was not a profession but the State of New York has recognized it as a profession and, therefore, we find ourselves safe.

"These are practically all the salient facts pertaining to ownership of pharmacies in our law in New York State. If there are any questions that you wish to ask me I will be very happy to reply."

Chairman Kelly after acknowledging the comprehensive presentation by Dr. Diner introduced Dr. J. H. Beal who had consented to participate in the discussion, dwelling more particularly on legal points.

THE PHARMACY OWNERSHIP LAW AND PUBLIC WELFARE.

Dr. J. H. Beal spoke on "The Pharmacy Ownership Law and Public Welfare." His address follows, in part: It is a considerable advantage to follow Dr. Diner in the discussion of any subject because when he has reviewed a subject with his broad vision there is very little remaining to be said. I was especially interested in his exposition of practical politics as exemplified in the State of New York, and his success in securing the active efforts of the pharmacists of that State in favor of his bill.

"The breadth of his policy and propaganda reminds me of a story told by Abraham Lincoln of a Southern Hard-shell Baptist preacher who was preaching on the expansiveness of the grace of God. 'The grace of God,' said he, 'covers the mountains and the plains and the distant islands of the sea; it takes in the Eskimos and Hottentots; it takes in the wild red Indians and the Cannibals, and some even believe it takes in the Yankees but I don't go that fur.' Dr. Diner went even farther, and took in everybody. His is the finest story of actual broad coöperation and what it can accomplish for pharmacy that I have ever listened to.

"Now, I will confine myself to a very small phase of this question, and that is this: What is the connection, if any, between a Pharmacy Ownership Law and the public welfare? Is there any real, substantial and direct connection between such a law and the public health?

"Pharmacists are not entitled to have their business protected by law. No obligation rests on the State to see that we have a profitable business. That isn't the business of the State. The only obligation resting upon the State is to secure to us all the rights, privileges and immunities enjoyed by all other citizens, no more, and no less.

"It has been held generally by the courts of last resort that the public health and the public interest are adequately and fully protected when the man in charge of the drug store is himself a registered pharmacist. This is the gist of a decision by the Supreme Court of Pennsylvania, and this decision is in line with the doctrine laid down by other courts. Now the question I want to ask is this: Is it true, not as a matter of law but as a matter of fact, that the public interest is fully protected by having a licensed and registered pharmacist in charge of the store where a qualified pharmacist is not the owner?

"Unfortunately, there are many degrees within which it is possible to vary the quality of a drug and yet comply with the requirements of the Pure Food and Drugs Act and with the other technical provisions of the law. Therefore the provision of the law which requires a registered pharmacist to be in charge of the store doesn't go far enough. I suppose it would be difficult to find a retail druggist who does not know of cases where the certificate of a registered pharmacist has been used as a cover for very shady interests. The manager must manage the store to suit the wishes of the owner, or seek another job.

"When our pharmacy laws were first enacted it probably did not occur to any one that there would be any extensive desire on the part of non-pharmacists to engage in the drug business, but the facts have proved otherwise. There have always been those who have aimed to get over or around the restrictions without complying with them.

"The point I have in mind is this: We are not asking for additional restrictions upon those who wish to engage in the practice of pharmacy, but only that others shall not be exempt from the requirements imposed upon us. The pharmacy law provides that the pharmacist shall have a college education, have a practical experience of four years in a drug store, and pass a rigid examination, besides other restrictions.

"Now if unqualified men may, through subterfuge, enjoy the privileges of those who have qualified themselves by education and experience, then the latter are subjected to burdens from which unqualified men are exempt.

"It is the practice of such subterfuges that a 'Pharmacy Ownership Law' is intended to prevent."

Chairman Kelly thanked Dr. Beal for his presentation and asked for a discussion of the subject by the members.

ABSTRACT OF DISCUSSION.

Theodore D. Wetterstroem inquired whether this law or any other New York law prohibited unlicensed pharmacies from advertising their places of business as a drug store, or listing their names as such in directories under the heading of "Drug Stores" or on package medicines, etc.

Mr. Diner replied that a "Pharmacy" is defined as "a place where physicians' prescriptions are compounded, and drugs are sold and dispensed." The selling of drugs other than in a pharmacy is prohibited, with the exception of certain drugs provided for under what is known as "Schedule A," in the New York law and "Schedule B," relating to poisons. Articles like sodium bicarbonate, olive oil and the like may be sold by anyone and are not subject to these regulations under the law. No one may display the name "drug store" or "druggist" unless for a place which is entitled to come under the classification of a "pharmacy."

Theodore D. Wetterstroem inquired whether advertising as druggist in a newspaper by one not registered would be prohibited. He referred to an Ohio law which prohibited the display of such name except by a registered person. There is no such control relative to the sale of "patent medicines"—a law, however, provides that a person must be registered to sell drugs, and only a registered druggist may sell "patent medicines."

Mr. Diner replied that the next step in New York would probably be along the lines of the discussion. The New York law has provisions for the sale of toilet articles, etc.—some of these places of sale are known as "drug shops," "patent medicine stores," "package medicine stores," etc. The sale of "patent medicines" is not prohibited nor advertising relating thereto in newspapers.

William B. Day referred to an Illinois decision that—as packages of "patent medicines" did not make known the active constituents, pharmacists had no more right of sale than merchants. This does not apply to other proprietary medicines and non-proprietary drugs which have been and are being sold by grocers and others. The State Board of Pharmacy has issued notice that sale of such articles, tincture of iodine, etc., may only be sold by registered pharmacists. A case will come into court, in which legal counsel will represent both sides of the question, and the State Pharmaceutical Association will be represented. This will likely decide the question in Illinois.

Lyman F. Kebler stated that he came in contact with many legal problems bearing on matters under discussion. He praised the efficient work of New York pharmacists and, in congratulating them on their success, stated that the results proved the value of coöperation. He asked whether, on account of the New York enactment, the sales of so-called prescription remedies would increase.

Mr. Diner replied that the manufacture of such preparations could not be prohibited unless contrary to law. The New York law provides that formulas shall be filed with the Board of Health. Coöperation was given by this Board in the passage of the law and New York pharmacists confer frequently with the Board; the efforts being always directed to protect the people.

C. W. Johnson asked what steps had been taken relative to establishing ownership of pharmacies.

Mr. Diner replied that this was not difficult in New York State where all drug stores must register annually with the Department having this in charge—the names of the owner and the licensed pharmacists must be given. The statement is sworn to and establishes a record. Under the licensing system a license may be revoked and therefore the one licensed is more careful and the provision is helpful in keeping undesirables out, and in securing information relative to those engaged in pharmacy.

C. W. Johnson expressed his interest in the discussions. He asked Dr. J. H. Beal whether he had given consideration to the possible difference between the practice of pharmacy and the owning of a pharmacy; whether it was possible for an individual to practice pharmacy without owning the pharmacy, or whether or not it was possible for an individual to own a drug store without practicing pharmacy? It seemed to him that the rights under the law hinged somewhat on the answer to these questions.

James H. Beal* said this presented a new line of thought and the factors mentioned would influence decisions if Courts were invoked to pass upon the issues of the law. He said that an

* See also discussion on The Pharmacy Ownership Law and Public Welfare by James H. Beal.

individual must be a pharmacist to practice pharmacy. The other question brought up points in law that required study. The owner's policy will determine whether or not the store will be conducted with due consideration for public welfare.

Chairman E. F. Kelly said it seemed to him that the definition for pharmacy would have to be extended somewhat.

Otto J. S. Boberg, of Wisconsin, asked whether items like tincture of iodine, spirit of camphor, etc., could be sold in other than drug stores.

Mr. Diner replied that the New York law listed articles that may be sold by grocers and others—Solution of Magnesium Citrate, for example, could not be sold by them because it is not so listed.

Mr. Boberg stated that in Wisconsin dealers who may sell certain household remedies in rural communities are registered.

W. Bruce Philip said that the public has a right to know whether a man who sells and dispenses medicines is qualified or not. He was highly pleased with the success of New York pharmacists which resulted from work—not by wishing—and that the example set by New York should be followed in other States.

The question was asked whether in New York the package medicinals that may be sold by other than pharmacists must be put up by pharmacists licensed in New York.

To this Dr. Diner answered—Yes. To another question he replied that a pharmacy must be in charge of a licensed pharmacist, and any one misrepresenting is subject to a fine.

E. L. Newcomb referred to the unsuccessful effort in Minnesota to pass an ownership law, largely because the pharmacists were not willing to exempt corporations. Another question brought out was the status of pharmacy—whether a profession or not. The question of what is a profession has been discussed in many ways in courts, covering the laws regulating medicine, dentistry, etc. There are decisions which indicate and clearly show that these professions cannot be practiced as corporations, but the practice must be by individuals. The decisions which the speaker referred to indicate that the compounding of prescriptions cannot be done in the name of a corporation; some States specifically prohibit that.

C. L. Eddy stated that New York pharmacists gladly offer the results of their experience to those of other States. Copies of the law will be furnished on request and the details of methods followed in securing publicity explained. History has been made by results accomplished in New York in the passage of the Ownership law and there are other matters under consideration as the result of the success. New York pharmacists realize the valuable services rendered by Dr. Diner, who didn't know when he was beaten but kept going right on. He spoke of a benefit which was provided for him by New York pharmacists which he converted into a fund for the benefit of students and he, Mr. Eddy, would like to have it a matter of record that Dr. Diner was largely responsible for the passage of the measure and has done a lasting service to pharmacy and to humanity.

Chairman Kelly was confident that the delegates would long remember this discussion and profit by it. The interest displayed confirmed the value of the first-hand information and the wisdom of bringing such live topics before a delegate body, so that in all States the legislative committees may profit by the experience of others. Chairman Kelly announced as the subject for discussion during the succeeding session—"The Limitation of the Sale of Medicines to Pharmacies."

Under the next order of business the Secretary read a communication from A. I. Goldberg conveying greetings and good wishes.

Presentation of resolutions was next announced by the Chairman, who stated that resolutions should be prepared in proper form, in writing. The list of States represented in the meeting was read.

California was the first State to respond; Mr. Philip said that he would present a resolution supporting the Kelly-Stevens bill.

F. E. Mortenson, of Colorado, spoke of successful efforts in Colorado in making a combination membership fee, including that of the State and the two National Associations. With such a combination the membership in Colorado has been largely increased and, in his opinion, many more additions would be made; it is easier to ask with success for an annual contribution for combined dues than to make the same collection in divisional sums, he said. The committee

of which he was a member explained—that by membership the State would be aided in legislative efforts and that the professional standing of pharmacists would be raised. (See Resolution 21 in October number, JOURNAL A. PH. A., pp. 908–909.) E. L. Newcomb, of Minnesota, suggested that additional service should be provided for members, by the issuance of monthly informative bulletins or otherwise. (See Resolution 12.)

Theodore D. Wetterstroem, of Ohio, presented the thought that some action be taken relative to those chosen as delegates and also that messages of coöperation be taken back by the delegates from this body. (See Resolutions 10, 22, etc.)

D. B. R. Johnson asked for acceptance of the classification of schools as considered by the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties (see pp. 926–928, October JOURNAL A. PH. A.); also that two members from the American Pharmaceutical Association be appointed to act with the members of the Committee from the N. A. B. P. and A. C. P. F. He presented the following resolution which was referred to the Committee on Resolutions:

> "*Resolved*, that the American Pharmaceutical Association accept the classification schedule as presented by the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties and appoint a committee of two on the Joint Committee."

John Culley, of Utah, stated that the American Pharmaceutical Association should have more effective publicity at State Association meetings. This could be brought about by having delegates or representatives from other State Associations present at the annual meetings. (See Resolution 13.)

Chairman Kelly referred to the agreement of the N. A. R. D. and A. Ph. A., that their executive committees meet annually, alternating their meetings—this year those of the N. A. R. D. are present here, and next year the joint meeting will be held during the convention of the N. A. R.D.

H. L. Meredith favored the suggestion of Mr. Culley and emphasized the importance of having representatives of the A. Ph. A. at State meetings.

Chairman Kelly impressed the necessity of having the delegates present a report of this meeting before their State meetings and enlarge upon the work done by the American Pharmaceutical Association.

E. L. Newcomb, of Minnesota, stated that the Chairman was right, but after all a visitor has an advantage over a delegate from home.

It was contended by several speakers that both the N. A. R. D. and A. Ph. A. should have representation at every State meeting.

Wilber J. Teeters, of Iowa, in supporting the convention said that a delegate from another Association would be recognized as an official delegate of the A. Ph. A., whereas one belonging to the State body in session was simply looked upon as a fellow-member.

Jeannot Hostmann, of New Jersey, said that delegates do not invariably report the A. Ph.A. meeting, or only in a very brief way without impressing the importance of the transactions of the American Pharmaceutical Association.

Jacob Diner supported the former speaker and advocated the appointment of such delegates by the House of Delegates.

A delegate, whose name was not noted by the reporter, moved that the resolution be referred to the Board of Directors. He asked also that delegates be supplied with a report of this meeting.

F. E. Mortenson, of Colorado, said that the idea of the visitor or the stranger was right; he always was accorded a hearing, and members want to hear from delegates on a special mission who had a message for them.

E. L. Newcomb, of Minnesota, said that the proposition confronting the delegates here was one of salesmanship. He was in favor of anything that will accomplish the bringing in of members to the Association.

J. F. Tilford, of Kansas, said that an outsider could more effectively present the claims of A. Ph. A. membership.

Bruce Philip, of California, was of the opinion that not all delegates could as forcefully and effectively report the transactions as some of the leaders in this convention. They felt more or less hesitancy. A readable report of the transactions of the House of Delegates should be

prepared which the delegate could read, if he preferred to do so. He thought the Secretary should prepare such a report for transmission to all delegates.

F. E. Mortenson, of Colorado, desired again to impress the importance of this or these proposed resolutions. The delegates should perform their duties and be aided in every way possible to do so. The main aim now is to have the associations ratify the actions of this convention and start out most energetically to secure more members for the American Pharmaceutical Association.

J. H. Beal of the Committee on Nominations inquired as to the officers that this Committee should nominate. After some informal discussion the Chairman stated that names of nominees were to be presented for President, Secretary, and for members of the Board of Directors. For the latter nine candidates were to be named; also the name of a nominee for Chairman of the House of Delegates and Recording Secretary. He stated that the Committee would have a lot of work to do on the by-laws for the coming year. There will be new points for them to work out, and it will be some time before we have them worked out properly.

D. B. R. Johnson referred to the resolution by which it is provided that the American Pharmaceutical Association appoint two members of the Joint Committee as expressed in the resolution he had presented.

William C. Anderson contended that the resolution had been referred to the Committee on Resolutions and was not a subject for action at this time. He was supported by L. L. Walton, and the Chairman so ruled.

Jeannot Hostmann, of the Committee on Resolutions, requested that the proposed resolutions be turned in to the Committee promptly so that they may be considered carefully.

James H. Beal, of the Committee on Nominations, requested further information relative to the nominees for the Board of Directors.

After some discussion the Chairman stated that there were to be nine nominees as there were three directors to be elected for the vacancies occurring in 1924.

The second session of the House of Delegates was then, on motion duly seconded and carried, adjourned.

THIRD SESSION.

The third session of the House of Delegates was convened by Chairman E. F. Kelly at 2:30 P.M., September 7.

The minutes of the second session of the House of Delegates were read.

Theodore D. Wetterstroem asked relative to the resolution by the Ohio Association; he was advised that this had been taken care of.

On motion of H. M. Whelpley and seconded by Theodore D. Wetterstroem, and vote, the minutes were approved.

A communication was received from Secretary C. H. Waterbury of the National Wholesale Druggists' Association conveying greetings and wishes for a successful meeting, and announcement of delegates to the A. Ph. A. The following delegates were named: F. S. Smith, of Asheville; John M. Scott, of Charlotte, N. C.; H. R. Goodall, of Durham, N. C.

A paper by Joseph Jacobs of Atlanta, Ga., was read; it follows:

A NEW WORLD SURVEY OF PHARMACY.

In 1898, at our Baltimore meeting, I had the honor, as Chairman of the Commercial Section, of presenting to the Association two hundred copies of a Report on Drug Conditions in all civilized nations of the world, made by our Washington Department of State.

It afforded me great pride and gratification at receiving, and I still appreciate, the hearty commendation bestowed upon me by the Association for inspiring the collection of the materials for such publication.

In reading and referring to the Report in the subsequent years, I have derived much educational information; and I have learned of others who received instruction and profit from its use.

By having a complete, authentic assemblage of facts concerning the methods of conducting the drug business in the various trade centers of the world, as to the procuring of druggists supplies; about the various laws prevailing; as to the habits and customs of peoples in regard to medical wants—this, disseminated among our importers, jobbers, retailers and scientists in Pharmacy;

with the added understanding of progress and improvements in the several branches of our profession made everywhere, our own country must derive a benefit in the increased trade that should ensue; in the opportunity to know and adopt new, valuable processes; and in promotion of friendly correspondence between the pharmacists of America and those of the other nations of the world.

But, since the publication of the volume referred to, unprecedented events have taken their place in history. A war that convulsed the civilization of the world has been waged and ended. Governments have changed in fundamental character. The industrial order has been shaken to its center and many changes have come in its composition.

These changes and events have brought about new conditions in our field of endeavor, as in all the various branches of business and commerce based upon other arts and materials besides our own.

It has, therefore, occurred to me to suggest to our Association whether it might not be of great profit to us, as well as promotive of the welfare of our country, if we could induce the present department of State to order and obtain another survey, bringing these inquiries up to date. With a view to ascertaining the sense of our body on this question, I offer a Resolution:

That our President appoint a committee whose duty it shall be to frame and present a request to the present United States Secretary of State (or of Commerce), embodying this idea.

A motion to receive was adopted and the paper referred to the General Session.

The Secretary stated that the report of the Chairman of the Committee on Patents and Trade Marks, F. E. Stewart, had been referred to the House of Delegates. It was accompanied by a letter which was read; it follows, in part:

> "It seemed to me important to review, as briefly as possible, the source and activities of the committee for several reasons. First, the American Medical Association is getting practically all the credit for the founding of the Council on Pharmacy and Chemistry, and the A. Ph. A., having taken the initiative and having done most of the work in the beginning, deserves its share. Second, the solution of the proprietary question and that of commercially introducing alleged new remedies by advertising has long been before the A. Ph. A., without solution, and will be taken up by the American Medical Editors' Association in Chicago at its annual meeting in October. I had a long talk with the president, Dr. Henry O. Marcey, of Boston, recently, and he asked me to lay special stress on this phase of the problem of materia medica monopoly. It is only fair that the A. Ph. A. shall have the first say in the matter, and I hope a committee will be appointed that may prove of valuable aid to the A. M. A., and its Council, and also to the A. M. E. A. in solving the advertising question. I am dealing with the subject somewhat differently in my report for the latter association, but purposely on somewhat parallel lines with the report I am sending you. Third, the Campbell plan, and the University of Toronto plan, for solving some of the problems to which I refer, are attracting much attention. I received a very cordial letter from J. K. Lilly expressing his pleasure in my endorsement of what he is doing in the insulin matter. Now is the time, it seems to me, that we ought to call attention to the consistency with which we have advocated coöperation between educational and industrial institutions for research purposes. The plans of Campbell and the U. of T. include the use of the patent and trade-mark laws to curb unfair monopoly and correct the tendency to mislead in advertising. Why not step in and do our share in bringing these plans to full fruition for the benefit of the A. Ph. A., and all concerned?
>
> (Signed) F. E. Stewart."

The Secretary stated that the report closed with a motion that a Special Committee be appointed which, on request, was read; it follows:

> "Your Chairman therefore moves that the American Pharmaceutical Association appoint a special committee, to include representatives of the educational and industrial institutions related to materia medica, to confer with the American Medical Association and its Council on Pharmacy and Chemistry, with the object of securing coöperation between the several interests referred to in solving the prob-

lems of materia medica monopoly and the introduction of alleged new remedies by advertising. Some of these problems have already been solved by the Council but there can never be coöperation and coördination between the two associations until the problem of monopoly is no longer a barrier between them."

After some discussion by Messrs. J. H. Beal, L. L. Walton, William C. Anderson, Lyman F. Kebler and others, a motion was made to receive the report, and that the incoming Chairman appoint the special committee. The motion was carried.

The Chairman announced as the next order of business a discussion on "The Limitation of the Sale of Medicines to Pharmacies," the subject to be introduced in a paper by Prof. J. G. Beard. The paper follows:

THE LIMITATION OF THE SALE OF MEDICINES TO PHARMACIES.

For several years there has been developing in North Carolina a feeling among druggists that some sort of legislation should be sought which would restrict to licensed pharmacies the sale of medicines and poisons. This feeling, which finally crystallized into action, grew out of the conviction that in no place else than drug stores could such commodities be handled safely and efficiently.

At the 1922 meeting of the North Carolina Pharmaceutical Association there was finally evolved a program looking to the enactment of a bill which would make it unlawful for merchants other than druggists to sell medicines (except insecticides and materials used in the arts) within five miles of a retail drug store, and further requiring merchants beyond the five mile zone to register their purpose of selling allowed domestic remedies and applying for dealer's license to the State Board of Pharmacy, paying therefor an annual fee of one dollar.

The all-time attorney of the Association was instructed to draw up and have introduced in the Legislature a bill embodying the above-named features; also every county chairman in the State was acquainted with the action and was authorized to organize all the druggists of his district in a campaign looking to the furtherance of the bill.

The justice of such a measure and the argument used in its behalf rested upon the premise that the public health is endangered by the indiscriminate sale of medicines by persons of untested competency. It was expected that opponents of the bill would endeavor to howl it down with cries of "Class Legislation," and such proved to be the case. No one denied that it would have been class legislation, but in no greater degree than are the laws limiting to physicians the practice of medicine, to druggists the compounding of prescriptions, and to attorneys the pleading of law. The real point involved, however, was not whether a class would be benefited by such legislation but whether the public good would be promoted by it.

The purposes underlying the bill and the main motive which actuated the Association in seeking its passage were not the removal of an obviously unfair form of competition, but were rather to guarantee that only persons proficient in the handling of medicines should be entrusted with their sale, so as to eliminate, in so far as humanly possible, a constant menace to public safety that then existed and always will exist in the widespread sale of drugs by clerks in general mercantile establishments and grocery stores who admittedly know nothing of the action or overaction, the purity or impurity, the strength or the quality of medicines. Even should such clerks desire to place quality of product above any consideration of profit, their lack of training in what is, of course, a specialized art would preclude their exercise of judgment.

North Carolina law, like the laws in twenty-odd other States, says that only a person of college training, with practical experience under a licensed pharmacist, with his majority attained, and who has passed a two-day gruelling examination by legally appointed authorities, shall be permitted to engage in the compounding of prescriptions and in the sale of poisons from broken containers. No one can dispute the wisdom of such discriminating legislation nor the value to society of such risk-removing restriction. At the same time every thinking, unprejudiced observer must admit that many teeth are taken out of such a law and the public in part robbed of the safety the measure was framed to furnish by the fact that the statute is so limited in scope and application that only when physicians' recipes are being dispensed and poisons sold from broken containers shall it be mandatory for salesmen of proved competency to engineer the transaction. But prescriptions are no more a potentiality of danger to the consumer thereof than are such articles as calomel, aspirin, paregoric, spirit of nitrous ether, and many potent

medicines when sold in the manner that one often sees them sold in grocery stores. A poison delivered in an unbroken package has the same death-dealing qualities as when passed out with the seal removed. And yet present-day law says that only an expert can sell the one while any person with a desire for profit may sell the other. Such restriction on the one hand and liberty on the other violates, of course, every precept of fairness, but it was not on the grounds of fairness to themselves that North Carolina druggists strove for additional legislation to remove such inconsistency. They believed that the public health was constantly threatened when untrained dealers handle such agents of danger as drugs, and so they used their collective influence to confine the legal dispensation of medicines to qualified agencies of sale by having introduced in the Legislature the bill mentioned in the prefatory part of this paper.

Shortly after the introduction of the restrictive measure the legislators were bombarded with letters and telegrams from opponents of the bill, and very quickly the opposition was fortified with the help of the Proprietary Association of America, wholesale grocery houses, and concerns such as McCormick & Co., Sauer and Co., *et cetera*. In the case of the manufacturing interests lined up against the bill there was frank admission that they sought the widest possible distribution of their products and were more or less indifferent as to who constituted their agents of sale. With such disregard of the safety of the consumer and intent only on volume of business, it was to be expected that they would fight desperately to thwart the movement which, had it been successful, would have limited the number of dealers who could handle their wares.

The battle between the Association druggists and the heterogeneous group of opponents was waged somewhat bitterly, the latter fighting rather unfairly at times, and culminated at the hearing of the bill before the Senate Health Committee. It would extend these remarks beyond the limits of your patience to go into even meager details of the half-day hearing of the bill, but there was one point which the proponents of the measure tried to emphasize that should be mentioned here for it seemed to have much weight with the Senate Committee. That point in essence was this: Granting that a groceryman and druggist are in equal manner capable of selling a bottle of patent medicine, the latter is still the logical agent of sale for the reason that the grocer would be running counter to his own interests in recommending a physician to a customer calling for stock medicine but really needing the services of a doctor, and unless he were a man of high principle and somewhat versed in therapeutics he would ignore the fact that serious symptoms were being obscured by patent medicine treatment, and go ahead and push the sale of the patent. To do otherwise would be hurtful to profits. The druggist, on the other hand, might have no higher morals than the grocer, but he could afford to recommend the diagnosis of a physician because filling the resulting prescription would be as profitable, perhaps more profitable, to him than would have been the sale of the patent. In other words, with the grocer it is a sale of the patent or nothing; while with the druggist it is a sale of the patent or the prescription but a sale nevertheless. Other arguments of just about equal cogency were advanced but time prevents their recital here.

As the verbal battle progressed it was recognized that the bill was doomed, and so the leaders in the fight for the measure modified the original statute in two particulars with the thought of eliminating what was proving the stiffest opposition from the standpoint of impression on legislators—the country merchant. The two changes were: (1) the selling of non-poisonous domestic remedies was exempted from the act, and (2) the five-mile limit was reduced to the corporate limits of any city or town in which there was a drug store conducted by a licensed pharmacist. However, the compromise, which should never have been offered since it was wrong strategically and ethically, had no appreciable effect in diminishing the attack on the bill by the patent medicine and grocery interests, and the Public Health Committee finally voted to report the measure unfavorably.

Thus was lost the first concerted effort in North Carolina to secure the passage of a forward-looking statute designed to protect the public from what is in increasing fashion becoming one of the most serious menaces in this section. But the bill will again be introduced, next time with its proponents better prepared to meet a type of opposition that has scant regard for ethics and but little more for veracity in argument. This type of legislation is bound to come in this country, and if State pharmaceutical associations will individually work for such enactment in their own States the collective power unloosed will wear out the opposition sooner or later. There is little need to wait until legislatures are actually in session before starting on the passage of such restric-

tive and health-promoting laws, for a cardinal part of any campaign looking to such enactment should be the education of the public to the necessity of such limitation.

The Chairman thanked the author for the interesting paper on behalf of the House of Delegates.

Charles W. Johnson, of Washington, gave an account of a poisoning case in the State of Washington. A package, open carton, of epsom salts, put up by a wholesale grocer, had been sold by a cross roads store to a mother of four children. All of the children were given doses of the salt by the mother, with fatal results. Investigation proved the presence of a large percentage of strychnine. A coronor's inquest completely exonerated the mother. The epsom salt was put up in unsealed cartons and, as far as the speaker knew, only the one referred to contained strychnine. The source of the error was not proven, but the case is a matter of court records.

Stirred by this unfortunate occurrence the State of Washington Pharmaceutical Association sought to pass a shop-keepers' licensing law. When the bill was up for discussion a rural legislator opposed the measure, contending that it would be an inconvenience, and cross roads stores sold these medicines for less. He moved that the bill be not approved, it was so voted and the presiding officer called for the next order of business. This defeat has contributed in part to practically a 100 per cent. organized State association. Funds have been raised by graduated contributions, ranging in amounts from $12.00 to $48.00 per annum from each pharmacy. It is contemplated to employ a full-time secretary.

Secretary Day referred to an incident in Illinois, where the State Department has recently issued a notice to department and grocery stores that these must not sell drugs, as it is forbidden under the State law. An inspector for the State called upon a general store recently and asked for $1/10$-grain calomel tablets. The clerk took down a bottle of $1/2$-grain tablets, rubbed out the "$1/2$" and wrote "$1/10$" on the label and handed the bottle to the inspector.

Jacob Diner called attention to the necessity of having laws provide for their enforcement; such omissions practically nullify them.

Chairman Kelly spoke of the difficulties in passing laws restricting the sale of medicines to pharmacies. In Maryland the Health Department looks after such matters. In his opinion the chief attraction for customers is the "cut rate" and they are often unmindful of the fact that drugs are being sold by those who are incompetent to judge identity or quality and in many cases indifferent thereto.

P. A. Lee, President of the North Carolina Pharmaceutical Association, being called upon, stated that the North Carolina law permits the sale of patent medicines but this is qualified by saying that they shall not contain any poisonous ingredients, so if these contain arsenic or strychnine, for example, then the sale can be restricted. He said that the selling of medicines is increasing in grocery stores. The North Carolina Association is endeavoring to inform the public relative to the danger of purchasing medicines from those who are not qualified to judge of them. He expressed the hope that the action of the next Legislature would be favorable relative to the restriction of the sale of medicines.

Otto J. S. Boberg, of Wisconsin, said that a Wisconsin law passed in 1907 provides that only registered pharmacists shall dispense medicines. The State Board of Pharmacy coöperates with the authorities in the enforcement of that law. For the rural communities provisions are made whereby the people can purchase their drugs at a general store provided these do not contain a poison. Such products as carbolic acid and tincture of iodine which have to be sold in bottles may be purchased from licensed dealers. Violators of this law are subject to revocation of such license and fine of $50.

H. M. Whelpley pointed out the value of impressing the public with the difference in the qualities of household remedies.

Theodore D. Wetterstroem, of Ohio, spoke of the antagonism by proprietary interests to regulatory legislation of the kind under discussion. The Ohio Pharmaceutical Association endeavored to pass a law which provided that only registered pharmacists should prepare or put up patent and proprietary medicines. An effort was made to explain to the members of the Legislature why only qualified pharmacists should sell medicines. The Ohio pharmacists are well organized; however, the opposing influences resulted in a defeat of the measure. The Ohio Association is doing publicity work and any message that might be sent back to them from this delegate body of value in that connection would be thankfully received.

REPORT OF COMMITTEE ON NOMINATIONS.

Because of the large attendance at this time the report of the Committee on Nominations was called for. Chairman James H. Beal said that the committee presented the names of three nominees for President: John Culley of Utah, Charles W. Holton of New Jersey, and George Judisch of Iowa. Before presenting the names of the nominees for the Board of Directors, Chairman Beal stated that the requirements of the office were considered in connection with geographical locations. In the discussions of the committee the names of several members were considered for the same nomination. The report of the Committee on the nominees for the Board of Directors is as follows: Henry V. Arny of New York, J. G. Beard of North Carolina, Jacob Diner of New York, A. G. DuMez of Washington, D. C., John J. Godding of Massachusetts, Julius A. Koch of Pennsylvania, Harry B. Mason of Michigan, E. L. Newcomb of Minnesota and H. M. Whelpley of Missouri.

William C. Anderson moved that the report of the Committee be received and that the Secretary be instructed to cast a ballot for these nominees. The motion was seconded by L. L. Walton. The report was adopted by a unanimous vote.

Chairman Beal stated that the Committee on Nominations was also charged with the duty of nominating a Chairman and Vice-Chairman of the House of Delegates and he presented the names of L. L. Walton of Pennsylvania for Chairman and W. Bruce Philip of California for Vice-Chairman. On motion duly seconded and carried the Secretary was instructed to cast one affirmative ballot of the House of Delegates for these officers.

Chairman Beal stated further that Article 5, Chapter 1, of the By-Laws provides that the Honorary President of the Association, also the Secretary and Treasurer, shall be elected annually by the House of Delegates on nominations by the Board of Directors. He stated that these officers would be elected at this time.

Secretary Robert P. Fischelis reported the nominees as follows: for Honorary President, William L. DuBois of Catskill, New York; for Secretary, William B. Day of Chicago; and for Treasurer, Evander F. Kelly of Baltimore.

E. L. Newcomb moved that the report of the Board of Directors be received and that the Secretary of the Board of Directors cast an affirmative ballot for the nominees.

William C. Anderson seconded the motion. The motion was carried by a unanimous vote.

REPORT OF COMMITTEE ON RESOLUTIONS.

Chairman E. F. Kelly called for the report of the Committee on Resolutions. He stated that these would be taken up seriatim unless there was an objection and voted on as they were read. Discussions, if any, should follow the reading of each resolution. (The report of the Committee on Resolutions is printed in the October number of JOURNAL, 1923, on pages 906 to 909. These are referred to in this abstract of the proceedings by number.—EDITOR.)

The first nine resolutions are based on the address of President Julius A Koch.

Resolution No. 1 was read. It refers to participation in the International Pharmaceutical Federation. The resolution was adopted.

Resolution No. 2 referring to the election of delegates to the International Pharmaceutical Federation was read and adopted.

Resolution No. 3 relating to funds for the Headquarters Building and for the Procter Memorial was read and adopted.

Resolution No. 4 on the location of Headquarters Building was read and adopted.

There was considerable discussion on Resolution No. 5. Among those who participated in the discussion were Messrs. Philip, Hostmann, Bradley, Newcomb, Beal and others. The latter portion of the resolution referring to administrative and regulatory powers and the distribution of restricted articles was tabled. The first portion as presented in Recommendation No. 5 was adopted.

Resolution No. 6 endorsing intelligent enforcement of existing laws but protesting against the enactment of unnecessary new laws and regulations was read and adopted.

Resolution No. 7 relating to publicity and the correction of errors of statements relating to pharmacy was read and adopted.

Resolution No. 8 commending the New York State Pharmaceutical Association for securing the passage of a law relating to the ownership of pharmacies was read and adopted.

Resolution No. 9 relating to professional and commercial pharmacy and that it is the duty of pharmacists to strive for the advancement of professional pharmacy was read and adopted.

Secretary Hostmann, of the Committee on Resolutions, stated that this concluded the consideration of the President's address and then read Resolution No. 10 which has reference to the appointment of delegates by State Associations to the House of Delegates. He explained that in making use of various comments and references of the President's address, these were quoted and then resolutions drawn based thereon. This accounted for two resolutions in one as pointed out by Professor Bradley. It was the aim of the Committee to express the purposes of the recommendations in resolutions.

Theodore D. Wetterstroem brought forward the thought that delegates were not always appointed with due consideration for what the State Associations desired and what was of particular interest to retail pharmacists. The proposal of being specific as to the selections was not mandatory. He read the original resolution. The purpose was to take back to the State Associations messages of cordiality and coöperation. Various viewpoints were expressed by Messrs. Johnson, Philip, Hostmann, Fischelis, Anderson, Newcomb, Beal, Walton and others. After free discussion, in order to bring out the purposes of the resolution, a motion to table the resolution as presented was carried with the understanding that one or more resolutions on the subject would be drafted. (This was done later in resolutions presented by E. L. Newcomb and Theodore D. Wetterstroem. See Resolutions 22 and 23.)

Resolution No. 11 was presented which provided that the classification of the schedule as presented by the N. A. B. P. and A. C. P. F. be accepted and a committee of two on the joint committee be appointed.

The Committee on Resolutions not having the necessary data could not intelligently consider the resolution and returned this without recommendation.

There was considerable discussion relative to this resolution participated in by Messrs. Anderson, Swain, Mortenson, C. W. Johnson, L. L. Walton, D. B. R. Johnson, Snow, Arny, Bradley and others.

L. L. Walton moved as a substitute the following resolution—see Resolution No. 11, page 907 of the October issue of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

William C. Anderson seconded the motion and, after some further discussion, a vote was called for accepting the substitute resolution. It was carried.

Resolutions Nos. 12 and 13 were read and adopted. The former refers to added service and the appointment of delegates to State Association meetings; action thereon was referred to the Board of Directors.

Resolution No. 14 was adopted; it approves the introduction and passage of a satisfactory price standardization bill at next session of Congress.

Resolution No. 15 directs that the Secretary prepare or have prepared an abstract of the proceedings of the House of Delegates for the delegates.

In moving its adoption W. Bruce Philip suggested that this abstract be not published, but sent to the delegates for their use at association meetings. It was adopted.

Resolution No. 16 was freely discussed by Messrs. Philip, Hostmann, Newcomb, Bradley, Kebler, Anderson, and others. It has reference to the appointment of pharmacists in various departments of the federal government. The point was stressed that if pharmacists were represented in the departments wherein pharmacy and pharmacists are concerned, there would not be the numerous and unnecessary bulletins. The resolution as presented provided for endorsement of applicants by associations; it was amended by striking out such requirement, and the resolution as amended was adopted.

Resolution No. 17 was amended urging each State Association to secure the introduction of laws providing for the restriction of ownership of pharmacies. As amended the resolution was carried. (See pp. 908 and 918, October JOURNAL A. PH. A.)

Resolutions Nos. 18, 19 and 20 were read and adopted. Resolution No. 18 recommends joint action in legislative matters by the N. A. R. D. and A. Ph. A. No. 19 encourages coöperation in U. S. P. and N. F. propaganda. No. 20 endorses a resolution of the Section on Practical Pharmacy and Dispensing providing for registered pharmacists in hospitals and dispensaries.

Resolution No. 21 was presented by F. E. Mortenson of Colorado; it encourages joint fees for membership in State and National Associations. Mr. Mortenson spoke of his successful

experience, and also suggested that efforts be made to prevent too many restrictive regulations which hamper pharmacists.

L. L. Walton then presented Resolution No. 11 in writing, and moved that the former resolution be reconsidered. Such action was taken and the resolution now reads as printed on p. 907, and also part of these minutes.

E. L. Newcomb presented Resolution No. 22, which displaces Resolution No. 10, which was tabled; see pp. 907 and 909. The motion to adopt was seconded by Theodore D. Wetterstroem. Carried.

Theodore D. Wetterstroem presented Resolution No. 23, relating to limitation of sale and dispensing of all medicines to registered retail pharmacists. It was adopted.

Jeannot Hostmann presented Resolution No. 24, relating to the use of the metric system by the Government. See p. 909. It was adopted.

William C. Anderson moved a rising vote of thanks for the Committee on Resolutions. It was carried unanimously.

W. Bruce Philip again called for information relative to an abstract of the minutes to be prepared for the delegates and mailed to them, so they could use this if desired or prepare from the abstract a report of their own.

The Chairman stated that it was his opinion that such abstract would be prepared and sent to the delegates.

Jeannot Hostmann stated that he had papers from the Scientific Section; his presumption was that some action was necessary relative to them by the House of Delegates. F. W. Nitardy explained that these were recommendations of the Chairman of the Scientific Section and had been endorsed by the Committee on his address. He did not know whether these should be submitted to the House of Delegates. J. H. Beal stated that nothing contained therein required action of the House of Delegates. He moved that the matter of the report relating to the expenditure of money, the Ebert Prize, and election of Honorary Members be referred to the Board of Directors; that relating to research matters be referred to the Committee on Research. It was seconded and carried.

Theodore J. Bradley moved that the Chairman of the House of Delegates appoint a special committee of five on Place of Meeting, to report at the next annual meeting. H. M. Whelpley moved that the same Committee confer with the Committee on Celebration of the 75th Anniversary of the American Pharmaceutical Association.

The motion as amended was carried.

Chairman Kelly stated that the Committee on Nominations had reported and unless there was any unfinished business to be reported, the installation of officers was next in order.

He concluded by saying, in part: "I have been tremendously interested in my work with you as Chairman in the House of Delegates, and I am very happy in the arrangements which have been made to give the House of Delegates a very efficient chairman. The Committee on Nominations has done, it seems to me, all that it could do in the selection of the Chairman and other officers of the House of Delegates, and in their choice we have taken a forward step. It gives me great pleasure to ask Mr. Walton to come forward and take up the arduous, but as I have often found them, interesting duties as chairman of this body. Mr. Walton—I am very glad to turn over the symbol of office to you, and wish you may have the highest success."

Chairman Walton responded as follows: "Gentlemen of the House of Delegates, it is with very great surprise that I find myself in this position. I regard it a very great honor to be assigned to represent the American Pharmaceutical Association, in any official capacity. But in giving me this very great honor as chairman of the House of Delegates I feel somewhat of a fear that under the conditions existing, in this very recently formed body, I may find it difficult to do just exactly as I should. However I hope for your sincere coöperation. It seems to me that you have given me a rather large order, nevertheless, in naming me for this position. In helping to train this new infant I will do the best I can, but I dare say there are many of you who are better nurses than I am, and I doubt not that I shall have to call upon you for your assistance very often."

Vice-Chairman W. Bruce Philip was next introduced. He presented some brief historical facts relating to the organization meeting in Denver and spoke in part as follows: "The original committee on Constitution and By-Laws was composed of John G. Godding, Clyde M. Snow and myself, and I assure you that it has been a pleasure for me to follow the doings of this House of

Delegates to this present day. I believe Dr. W. C. Anderson was our first Chairman. The history of the House of Delegates has been very instructive and very interesting; its work will continue and grow in influence; the idea is to draw the retail pharmacists to the American Pharmaceutical Association. It was my hope that the old officers, Mr. Kelly and Mr. Newcomb, would continue the good work that they had started so ably, but I understood that it was the desire to place retail pharmacists into the two offices of Chairman and Vice-Chairman. I would ask the members of the American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy, who so kindly helped the House of Delegates in developing the organization to its present form, to continue their help, and not to think that because it is now in the hands of retail pharmacists they can withdraw their support, for we need them now just as badly as we ever did. I feel that we cannot reach the highest ideals in our work unless these bodies and the retail pharmacists go on hand in hand, along the same lines they have been working on for the last several years. I think that the work of the members and the work of the officers of this organization will continue on the same scale that it always has, and I am sure that we will not stop at this point and, if so, we need have no fear of the final results. I thank you."

Secretary William B. Day said: "Mr. Chairman, friends, and delegates, it is with a very great hesitation I have accepted this second term. When I accepted the office last year, I thought it was to tide over as Secretary until you could get someone else, but I am glad to be of service and shall continue to give you my best efforts toward that end."

William C. Anderson said: "I believe that the members of this House of Delegates would like to express their appreciation of the hard, earnest and constructive work of the man who has been most responsible for bringing up the House of Delegates to its present high standard. The time will not permit me to say much, but I feel that we owe a most sincere and hearty vote of thanks to retiring Chairman E. F. Kelly for his hard work; though we can compensate him in no other way, I move that we extend the retiring chairman a rising vote of thanks." The motion was seconded by all of those present rising.

Chairman Walton said: "Dr. Kelly, we have been so anxious that you should have our sincere thanks that we couldn't proceed about it in a formal manner. I did not have an opportunity to present the motion, as I had hoped to do, which has been made, but we hope that you will understand and accept our sincere and formal appreciation for the splendid work which you have done."

The retiring Chairman thanked the members for this evidence of their appreciation.

The final session of the House of Delegates was then adjourned.

State Association Delegates.*

Alabama—Carl Whorton, B. O. Shiflett, L. C. Lewis.
Arizona—
Arkansas—Booker Latimer, Frank Schachleiter.
California—Bruce Philip, Mrs. Philip, Laird Stabler.
Colorado—Frank E. Mortenson.
Connecticut—B. E. Höckert, Charles T. Hull, C. P. Gladding.
Delaware—
Florida—Wm. D. Jones.
Georgia—Sinclair Jacobs, Emmett L. Murray, Robert C. Wilson.
Idaho—
Illinois—J. H. Beal, C. H. Avery, Paul Eiche.
Indiana—Frank H. Carter, F. W. Meissner, C. B. Jordan.
Iowa—Geo. Judisch, W. W. Haire.
Kansas—J. Floyd Tilford, D. F. Deem, John Schmitter.
Kentucky—Linwood A. Brown, O. C. Dilly, J. Gayler.
Louisiana—C. Godbold, J. E. Guess, E. H. Walsdorf.
Maine—T. J. Bradley, Chas. H. Davis, J. H. DeOrsay.
Maryland—E. F. Kelly, H. L. Meredith, R. L. Swain.
Massachusetts—Fred E. Jones, Jas. F. Finneran.
Michigan—
Minnesota—E. L. Newcomb, Miss Frances Greenwalt.
Mississippi—H. M. Faser, Gus C. Kendall.
Missouri—H. M. Whelpley, E. H. Riske.
Montana—
Nebraska—Smith C. Wilson, Howard C. Newton, R. A. Lyman.
New Hampshire—
New Jersey—Jeannot Hostmann, Charles W. Holton, R. P. Fischelis.
New Mexico—D. W. Haydon, Clayton.
New York—Robert S. Lehman, Wm. C. Anderson, J. Diner.
North Carolina—E. V. Zoeller, J. G. Beard, W. W. Horne.
North Dakota—H. L. Haussamen, W. P. Porterfield, W. F. Sudro.
Ohio—Theo. D. Wetterstroem, Harry G. Schmuelling, Otto Bassbraker.
Oklahoma—Thos. Hadley, D. B. R. Johnson.
Pennsylvania—Adolph Schmidt, Ambrose Hunsberger.
Rhode Island—
South Carolina—W. H. Zeigler, W. G. Harper, S. C. Hodges.
South Dakota—D. F. Jones, E. C. Bent.
Tennessee—W. J. Cox, B. B. Kerr, Wm. P. Winter.
Texas—Walter Cousins.

* Please report omissions to Secretary William B. Day, 701 So. Wood St., Chicago, Ill. Relative to errors please notify Journal A. Ph. A., 253 Bourse Building, Philadelphia, Pa.

Utah—JOHN CULLEY.
Vermont—
Virginia—H. E. ORCHARD, A. L. I. WINNE, G. E. THOMPSON.
Washington—C. W. JOHNSON.
West Virginia—G. A. BERGY, ALFRED WALKER, S. M. SCOTT.
Wisconsin—W. O. RICHTMAN, J. J. POSSEHE, O. J. S. BOBERG.
Wyoming—

DELEGATES FROM COLLEGES AND UNIVERSITIES.

California College of Pharmacy, University of California—BRUCE PHILIP.
California—University of Southern California—LAIRD J. STABLER, A. R. MAAS.
George Washington University—S. L. HILTON, A. C. TAYLOR, LOUIS F. BRADLEY.
Howard University College of Pharmacy—CHAS. H. FUHRMAN.
Valparaiso University—HUGH C. MULDOON, GEO. C. SCHICKS.
Purdue University—C. B. JORDAN, W. F. GIDLEY.
State University of Iowa—R. A. KUEVER, ZADA M. COOPER, W. J. TEETERS.
University of Kansas—L. D. HAVENHILL, D. H. SPENCER.
Louisville College of Pharmacy—O. C. DILLY, F. D. STOLL, G. L. CURRY.
Tulane University—GEO. S. BROWN, J. M. DANNEKER.
University of Maryland—E. F. KELLY, B. OLIVE COLE, JOHN C. KRANTZ, JR.
University of Michigan—EDWARD H. KRAUS.
University of Mississippi—H. M. FASER, GEO. L. BURROUGHS.
University of Minnesota—F. J. WULLING, E. L. NEWCOMB, GUSTAV BACHMAN.
Creighton University—HOWARD C. NEWTON.
New Jersey College of Pharmacy—ROBERT P. FISCHELIS.
University of Buffalo—A. B. LEMON, LEON M. MONELL.
Fordham University—JACOB DINER, OTTO F. A. CANIS
College of Pharmacy of City of N. Y.—H. H. RUSBY, GEO. C. DIEKMAN, H. V. ARNY.
Western Reserve University—E. E. STANFORD, E. D DAVY.
North Pacific College—ALBERT SCHNEIDER.
Philadelphia College of Pharmacy—C. H. LAWALL, J. W. STURMER, IVOR GRIFFITH.
Massachusetts College of Pharmacy—J. G. GODDING, W. H. GLOVER, T. J. BRADLEY.
Meharry Medical College—JOHN J. MULLOWNEY.
University of Tennessee—R. L. CROWE, T. P. NASH.
Medical College of Virginia—W. F. RUDD, W. G. CROCKETT, C. C. HASKELL.
West Virginia University—G. A. BERGY, JOSEPH L. HAYMAN.
University of Washington—C. W. JOHNSON.
University of Illinois, School of Pharmacy—W. B. DAY, S. M. SNOW, A. H. CLARK.

A. PH. A. BRANCHES.

University of North Carolina Branch—A. P. WESTBROOK, A. WARD, E. V. KYSER.
New York Branch—GEO. C. DIEKMAN, CHAS. W. HOLTON, JEANNOT HOSTMANN.

ASSOCIATIONS AND SOCIETIES.

Kings County Pharmaceutical Society—WM. C. ANDERSON, H. B. SMITH, T. D. MCELHENIE.
National Wholesale Druggists' Assoc.—F. S. SMITH, JOHN M. SCOTT.
New York Apotheker Verein—H. KANTROWITZ.

U. S. DEPARTMENTS.

U. S. Public Health Service—A. G. DUMEZ.
U. S. Army—MAJOR VON ZELINSKI, U. S. A.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE BOARD OF DIRECTORS.

Office of the Secretary, 192 Roseville Ave., Newark, N. J.

LETTER NO. 1.

October 5, 1923.

To the Members of the Board of Directors:

1. The full membership of the Board of Directors of the American Pharmaceutical Association for the fiscal year 1923–24 is as follows:

Elected Members: Henry M. Whelpley, 2342 Albion Place, St. Louis, Mo. Term expires 1924; George M. Beringer, 501 Federal St., Camden, N. J. Term expires 1924; John G. Godding, 278 Dartmouth St., Boston, Mass. Term expires 1924; Charles E. Caspari, 2108 Locust St., St. Louis, Mo. Term expires 1925; Samuel L. Hilton, 1033 Twenty-second St., N. W., Washington, D. C. Term expires 1925; Wilbur L. Scoville, P. O. Box 488, Detroit, Mich. Term expires 1925; James H. Beal, 801 W. Nevada St., Urbana, Ill. Term expires 1926; Charles H. LaWall, 636 Franklin Square, Philadelphia, Pa. Term expires 1926; Robert P. Fischelis, 192 Roseville Ave., Newark, N. J. Term expires 1926.

Ex-Officio Members with Vote: H. V. Arny, President, 115 W. 68th St., New York, N. Y.; E. F. Kelly, Treasurer, Lombard and Greene Sts., Baltimore, Md.

Ex-Officio Member without Vote: W. B. Day, Secretary, 701 South Wood St., Chicago, Ill.

2. *Minutes of the first meeting of the Board of Directors, American Pharmaceutical Association:* The Board of Directors of the American Pharmaceutical Association held its organization meeting immediately after the final adjournment of the Council of the Association at the Kenilworth Hotel, Asheville, N. C., on Friday, September 7th, at 2:55 P.M. The following were present: Arny, Beal, Beringer, Caspari, Fischelis, Godding, Hilton, LaWall, Scoville and Whelpley.

S. L. Hilton nominated J. H. Beal for chairman. The nominations were closed and Dr. Beal was unanimously elected. C. H. LaWall declined nomination for vice-chairman and

nominated S. L. Hilton. The nominations were closed and Mr. Hilton was unanimously elected. C. H. LaWall nominated R. P. Fischelis for Secretary. The nominations were closed and Dr. Fischelis was unanimously elected.

Chairman Beal then called attention to the fact that the Board of Directors was charged with the duty of nominating the Honorary President, Secretary and Treasurer and electing the Editor of the JOURNAL, Editor of the YEAR BOOK, Historian and Local Secretary. The following nominations were made and transmitted to the House of Delegates: for Honorary President, W. L. Du Bois, Catskill, N. Y., nominated by Whelpley, seconded by Arny; for Secretary, W. B. Day, nominated by LaWall, seconded by Scoville; for Treasurer, E. F. Kelly, nominated by LaWall, seconded by Beringer. These nominations were all made unanimous and the secretary was instructed to transmit them to the House of Delegates.

G. M. Beringer nominated E. G. Eberle for Editor of the JOURNAL, seconded by Hilton. He was unanimously elected.

C. H. LaWall nominated A. G. DuMez for Editor of the YEAR BOOK, seconded by Arny. Dr. DuMez was unanimously elected.

H. M. Whelpley nominated W. G. Gregory for Local Secretary, seconded by Fischelis. Dr. Gregory was unanimously elected.

H. V. Arny nominated E. G. Eberle for Historian, seconded by Hilton. He was unanimously elected.

W. L. Scoville then raised the question as to whether the work of the Board was to be carried on by committees as had been the custom of the Council. The matter was discussed and it was finally decided that much of the work would have to be done by committees of the Board. C. H. LaWall moved that a committee on committees be appointed consisting of the chairman, the vice-chairman and the secretary of the Board to investigate and report back to the Board what committees are desirable. Motion seconded by H. V. Arny and carried.

S. L. Hilton moved that Dr. Dubin be given permission to publish his paper, read before the Scientific Section, in the *Medical Times*. The motion was seconded by C. H. LaWall and carried.

It was moved by H. V. Arny, seconded by C. H. LaWall, that the Board reassemble at the close of the Final General Session of the Association. The motion was carried and the meeting adjourned at 3:20 P.M.

ROBERT P. FISCHELIS, *Secretary*.

3. Minutes of the second meeting of the Board of Directors of the American Pharmaceutical Association: The second meeting of the Board of Directors of the A. Ph. A. was held Friday evening, September 7th, 1923, 11:55 P.M., at Hotel Kenilworth, Asheville, N. C. The following were present: S. L. Hilton, who presided, C. H. LaWall, who acted as secretary, Arny, Day, Kelly, Beringer, Godding, Scoville, and Whelpley.

It was moved by H. M. Whelpley and seconded by G. M. Beringer that the reading of minutes be suspended.

It was moved by H. M. Whelpley and seconded by W. L. Scoville that the Board of Directors approve the appointment of President Arny—of H. V. Arny and C. H. LaWall to fill vacancies on the Research Committee.

On motion of E. F. Kelly, seconded by H. M. Whelpley, a resolution was passed that the duties of the former Secretary of the Council be assumed by the Secretary of the Board of Directors and that a committee be appointed to draft suitable by-laws for the guidance of the Board of Directors.

It was moved by E. F. Kelly and seconded by W. L. Scoville that the present budget, including salaries, be continued for the present calendar year. Carried.

It was moved by H. M. Whelpley and seconded by H. V. Arny that the salary of Secretary DuMez of the Council be continued until October 1, 1923. Carried.

It was moved by H. M. Whelpley and seconded by J. G. Godding that the salary of Secretary Fischelis of the Board of Directors be paid from September 1, 1923. Carried.

It was moved by G. M. Beringer and seconded by W. L. Scoville that the Secretary of the Council be requested to transfer to the Secretary of the Board of Directors such property of the Association as pertains to the duties of the Secretary. Carried.

General discussion of functions, opportunities, responsibilities, etc., of the Board of Directors was participated in by Messrs. Kelly, Day, and Whelpley. No motion resulted.

The question of continuing the membership campaign was discussed.

It was moved by H. M. Whelpley and seconded by H. V. Arny that an appropriation of $500 be made to the membership committee for the continuation of the work so successfully conducted last year. Carried.

It was moved by E. F. Kelly and seconded by G. M. Beringer that the Chairman of the Membership Committee be requested to com-

municate with Professor Newcomb requesting information concerning bulletins to be sent to members. Carried.

It was moved by W. B. Day and seconded by H. M. Whelpley that the traveling expenses and hotel bill of the Editor be paid for attendance at the Asheville meeting. Carried.

The meeting adjourned at 12:50 A.M., September 8, 1923.

CHARLES H. LAWALL, *Secretary* (pro-tem).

LETTER NO. 2.

To the Members of the Board of Directors:

4. *Chairman Beal requests prompt action on the following communication:*

"Mr. H. B. Mason, of Detroit, in a letter to the Chairman has declined nomination to the Board of Directors.

"Among the duties given to the Board of Directors by Article V, Chapter 3 of the By-Laws, is that 'the Board of Directors shall act for the Association and House of Delegates in the interim between meetings,' etc.

"The Chairman interprets this to mean that the Board of Directors can receive resignations from nominees and substitute other names in their place. Members of the Board are therefore requested to submit to Secretary Fischelis, at the earliest possible date, the name of one or more nominees to fill the vacancy on the ticket created by Mr. Mason's resignation.

"Upon receipt of such nominations, the Secretary of the Board will submit all the names suggested for a final vote.

"Please act promptly in this matter, so there may be no unnecessary delay in sending out the annual ballots.

Very truly,

J. H. BEAL, *Chairman.*"

5. The Secretary is in receipt of a request from Walter M. Chase, ex-chairman of the Commercial Section, that permission be granted to publish a paper entitled "A Panacea for Success" by Harry B. Mason, in the *Bulletin of Pharmacy* prior to its publication in the official Journal. This paper was read before the Commercial Section at the Asheville meeting. The request is approved by Editor Eberle. (Motion No. 1.) *It is moved by Fischelis, seconded by Arny, that permission be granted to publish Mr. Mason's paper in the Bulletin of Pharmacy prior to publication in the Journal.* A vote is called for.

6. The following letter from Chairman L. L. Walton of the House of Delegates has been transmitted by Secretary Day for the attention of the Board of Directors:

"WILLIAMSPORT, PA., Sept. 12, 1923.

"DR. W. B. DAY, Secretary,
House of Delegates, A. Ph. A.,
Chicago, Ill.

Dear Sir:

"I find upon careful study of the By-Laws of the A. Ph. A., as amended at the recent Annual Meeting, that I am confronted with rules governing the conduct of the business of the House of Delegates which are in conflict with the By-Laws of the A. Ph. A., and impossible to carry out under the conditions which must prevail in its sessions.

"I have gone over the matter in detail in conference with the President, Drs. Koch, Beringer, Whelpley and Eberle, and have suggested the only possible procedure which will permit carrying on the business of the Association during the year and at the next Annual Meeting. A strictly legal procedure is not possible but what we find necessary to do under the circumstances will be backed by the only authority now constituted to give final decision under such circumstances.

"We were all of the same opinion, I am pleased to say, of what must be done first, namely, President Arny to appoint at once the Judicial Committee, provided by the amended By-Laws, and Chairman Walton to appoint at once a Special Committee on Constitution and By-Laws.

"In accordance with duty vested in me under Chap. IX, Art. 1, of the By-Laws adopted 1923, I am advising of the appointment of a Special Committee on Constitution and By-Laws whose duty it shall be to revise, amend and delete the Constitution and By-Laws, as amended, that the same may be brought into harmony with the plan adopted at the Cleveland Annual Meeting (1922) for the so-called reorganization of the A. Ph. A., as follows: James H. Beal, Chairman; Samuel L. Hilton; George H. Beringer; Ambrose Hunsberger; William C. Anderson.

"The aforesaid Committee is requested to complete its report on or before April 1, 1924, and publish the same in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, May issue, 1924, and report to the House of Delegates at its *First Meet-*

ing in 1924. (Chap. V, Art. V, 1923 By-Laws.)

"Please advise the Board of Directors of the appointment of this Committee, approval of which I respectfully petition.

"It may facilitate matters if you defer advising the Board of Directors until President Arny appoints the Judicial Committee and refer both committees for ratification at the same time.

"When the Judicial Committee is ratified I shall have several questions which must be settled by that Committee before I can intelligently plan the work of the House of Delegates. Please advise me at your earliest convenience after you learn of the ratification.

Very truly yours,
(Signed) L. L. WALTON,
Chairman, House of Delegates,
American Pharmaceutical Association."

7. The following letter has been received from Secretary Day:

"CHICAGO, ILL., September 17, 1923.

"Dear Secretary Fischelis:

"President Arny has appointed the Judicial Committee provided for in Chapter 8, Article 2, of the By-Laws. You will note that Article 1 requests that this appointment be ratified by the Board of Directors. I am therefore submitting them to you for such ratification:

	Term expiring
J. A. Koch	1928
G. M. Beringer	1927
J. H. Beal	1926
H. M. Whelpley	1925
E. F. Kelly	1924

Yours truly,
W. B. DAY,
General Secretary."

Please register your approval or disapproval of the appointments made by President Arny and Chairman Walton on the enclosed card.

LETTER NO. 3.

8. The following applications for active membership accompanied by the first year's dues and proper endorsements have been received. You are requested to vote on these applications:

No. 1, James A. Warnick, 2105 Perrysville Ave., Pittsburgh, Pa.; No. 2, Thomas A. Russel, 184 Rhode Island Ave., East Orange, N. J.; No. 3, William Harold Batt, 100 W. Cross St., Baltimore, Md.; No. 4, John Franklin Burdine, 37 Peachtree Arcade, Atlanta, Georgia; No. 5, Alvin Earl Scott, 101 Commerce St., Aberdeen, Miss.; No. 6, J. J. Wittwer, J. W. Kobi Co., 622 Rainier Ave., Seattle, Wash.; No. 7, Albert Whitman Sweet, 206 E. Boundary St., Gainesville, Florida; No. 8, Ben Lawrence, 211 East Twenty-first St., Wichita, Kansas; No. 9, Jonathan S. Wood, Belpre, Kansas; No. 10, H. F. Steinert, 1112 Teutonia Ave., Milwaukee, Wisc.; No. 11, Herman W. Sander, 300 S. San Gabriel Blvd., San Gabriel, Calif.; No. 12, Pehr Adelbert Constantine, 3866—5th St., San Diego, Calif.; No. 13, Kenneth Weeks, 78 Walnut St., Bridgeton, N. J.; No. 14, John W. Kelleher, 1047 Purchase St., New Bedford, Mass.; No. 15, Charles Rhea Houchins, Jr., Victoria, Va.; No. 16, Harry Wertz, Main & Clinton Sts., Johnstown, Pa.; No. 17, M. F. Benjamin, Cox, Roanake & Main St., Riverhead, N. Y.; No. 18, George James White, 405 E. Main St., Jackson, Mich.; No. 19, D. G. Coon, 416 Quincy St., Hancock, Mich.; No. 20, Russel C. Platt, 1943 St. Aubin Ave., Detroit, Mich.; No. 21, James Elwood Armstrong, 129—15th St., Wheeling, W. Va.; No. 22, Ellis J. Braman, Van Vleet-Mansfield Drug Co., Memphis, Tenn.; No. 23, C. H. Moor, 322 Main St., Rockland, Maine; No. 24, Arthur Dougherty, 14 W. S., Macomb, Ill.; No. 25, Ida Lilian Minaker, Monitor, Oregon; No. 26, Ida Mabel Spears, Route 2—Errol Station, Milwaukee, Oregon; No. 27, Albert L. Broxam, 124 So. Main St., Maguaketa, Iowa; No. 28, Frank O. Salmonson, Lake Norden, S. D.; No. 29, Herman Crolly, 201 West Lincoln Ave., Mt. Vernon, New York; No. 30, Leonard S. Whitmore, 819 Jefferson Court, San Mateo, Calif.; No. 31, Joseph B. Swim, 3214 Twenty-fifth St., San Francisco, Calif.; No. 32, Dellis Clifton Keller, Dow Drug Company, Cincinnati, Ohio; No. 33, John P. McNulty, 3800 Magazine St., New Orleans, La.; No. 34, Edward William Welch, 4220 Magazine St., New Orleans, La.; No. 35, John Bengston, 1704 Second Ave., Rock Island, Ill.; No. 36, Charles Brown, S. E. Mississippi & Atlantic Ave., Atlantic City, N. J.; No. 37, Thomas Philip Lloyd, Chapel Hill, N. C.; No. 38, William Paxton Hall, Jr., Main St., Forest City, N. C.; No. 39, John Harrison Robinson, 2548 Casper Ave., Detroit, Mich.; No. 40, Taylor Edward Jarrett, 123 No. Main St., North Little Rock, Ark.; No. 41, Allen Loy Hess, 54 Spring St., Eureka Springs, Ark.; No. 42, C. F. Sturdivant, 825 Hobson Ave., Hot Springs, Ark.; No. 43, J. L. Bomor, 113 E.

Markham St., Little Rock, Ark.; No. 44, Bertram Moses Weaver, 1001 Mission St., So. Pasadena, Calif.; No. 45, Gordon Anderson Triplett, Osgood, Ind.; No. 46, Harry E. Draper, 713 Main St., Oregon City, Oregon; No. 47, Cedric McClellan Jeffers, 118 Magnolia Ave. (P. O. Box 256), Hubbard, Texas; No. 48, Lottie M. Manross, 2339 Ashmead Place, N. W., Washington, D. C.

(Motion No. 2.) *Vote on applications for active membership in the A. Ph. A.*

ROBERT P. FISCHELIS,
Secretary, Board of Directors, A. Ph. A.

LETTER NO. 4.

9. President Arny submits the following appointments for the approval of the Board of Directors as required in the revised By-Laws:

Board of Canvassers: Ivor Griffith, Philadelphia, Pa.; Adley B. Nichols, Philadelphia, Pa.; Ralph R. Foran, Philadelphia, Pa.

Committee on Membership: Boards of Pharmacy—Chairman, H. Lionel Meredith, Hagerstown, Md.; H. C. Christensen, Chicago, Ill.; E. Berger, Tampa, Fla.

Food and Drug Chemists—Chairman, H. C. Fuller, Washington, D. C.; L. E. Sayre, Lawrence, Kans.; W. W. Stockberger, Washington, D. C.; C. O. Ewing, Boston, Mass.; Joseph L. Mayer, New York, N. Y.

Wholesale Druggists and Manufacturers—Chairman, A. R. L. Dohme, Baltimore, Md.; Chas. J. Lynn, Indianapolis, Ind.; W. T. Hover, Denver, Colo.; H. K. Mulford, Wayne, Pa.; E. L. Patch, Stoneham, Mass.

Faculties in Pharmacy Schools—Chairman, A. H. Clark, Chicago, Ill.; Chas. H. LaWall, Philadelphia, Pa.; Hugo H. Schaefer, New York, N. Y.; E. Spease, Cleveland, Ohio; C. W. Johnson, Seattle, Wash.

General Membership Committee—Chairman, William B. Day, 701 So. Wood St., Chicago, Ill.

District No. 1. Chairman, John G. Godding, 278 Dartmouth Street, Boston, Mass.—Including Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island:

CONNECTICUT.—Chairman, Curtis P. Gladding, Hartford; Levi Wilcox, Waterbury. MAINE.—Chairman, M. L. Porter, Danforth; Alfred P. Cook, Portland; Geo. O. Tuttle, Portland; Chas. H. Howard, South Paris. NEW HAMPSHIRE.—Chairman, William D. Grace, Portsmouth; George H. Knowlton, Manchester. VERMONT.—Chairman, Urban S. Livingston, Newport; Wellcome B. Eastman, St. Johnsbury; E. G. McClallen, Rutland. MASSACHUSETTS.—Chairman, Theodore J. Bradley, Boston. Irving P. Gammon, Brookline; Florin J. Amrhein, Brookline; Carlton B. Wheeler, Hudson; Charles F. Nixon, Leominster. RHODE ISLAND.—Chairman, Herbert Haynes, Providence; E. P. Anthony, Providence.

District No. 2. Chairman, Jeannot Hostmann, 115 W. 68th St., New York, N. Y.—Including New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia, District of Columbia:

NEW JERSEY.—Chairman, Edward A. Wickham, Newark; Henry Jorden, Bridgeton; Edgar R. Sparks, Burlington; Harry W. Crooks, Newark; Fred. M. Geimer, Maplewood. VIRGINIA.—Chairman, A. L. I. Winne, Richmond; W. F. Rudd, Richmond; Maude Lambert, Roanoke; T. F. Knock, Petersburg; Samuel Weinstein, Richmond. WEST VIRGINIA.—Chairman, Alfred Walker, Sutton; G. O. Young, Buckhannon. NEW YORK.—Chairman, J. Leon Lascoff, New York; L. Berger, New York; Edward S. Dawson, Jr., Syracuse; George C. Diekman, New York; Jacob Diner, New York; Otto Raubenheimer, Brooklyn; Henry B. Smith, Brooklyn. MARYLAND.—Chairman, C. L. Meyer, Baltimore; James A. Black, Baltimore; Albert L. Pearre, Frederick; George E. Pearce, Frostburg. DISTRICT OF COLUMBIA.—Chairman, Louis Flemer, Washington; Redmond A. Mayo, Washington; H. E. Kalusowski, Washington. DELAWARE.—Chairman, John O. Bosley, Wilmington; Reuben M. Kaufman, Seaford; Harry E. Culver, Middletown; Herbert K. Watson, Wilmington. PENNSYLVANIA.—Chairman, P. H. Utech, Meadville; Joseph W. England, Philadelphia; Charles F. Kramer, Harrisburg; Ambrose Hunsberger, Philadelphia; Louis Saalbach, Pittsburgh; L. L. Walton, Williamsport.

District No. 3. Chairman, Edward Spease, 3051 Scarborough St., Cleveland, Ohio.—Including Ohio, Indiana, Illinois, Kentucky, Michigan, Missouri and Kansas:

ILLINOIS.—Chairman, Wm. Gray, Chicago; Mrs. M. H. Zwick, Oak Park; Fred Metzger, Springfield; N. S. Eichenberger, Peoria; John C. Wheatcroft, Chicago; Byron Armstrong, Jacksonville. OHIO.—Chairman, Edward Spease, Cleveland; Waldo M. Bowman, Toledo; Lewis C. Hopp, Cleveland; Theo. D. Wetterstroem, Columbus; A. L. Flandermeyer, Cleveland; F. H. Freericks, Cincinnati; M. N. Ford, Columbus; O. U. Cassady, Youngstown; Eliza-

beth Jenkins, Dayton; Caswell A. Mayo, Cincinnati. INDIANA.—Chairman, F. W. Meissner, Jr., La Porte; C. B. Jordan, Lafayette; Emil Reyer, South Bend; W. H. Rudder, Salem; R. L. Green, Notre Dame; Ernst Stahlhuth, Indianapolis. KENTUCKY.—Chairman, Oscar Dilly, Louisville; Addison Dimmitt, Louisville; J. W. Gayle, Frankfort; Edward L. Pieck, Covington. MICHIGAN.—Chairman, L. A. Seltzer, Detroit; A. A. Wheeler, Detroit; William C. Kirchgessner, Grand Rapids; Harry B. Mason, Detroit. MISSOURI.—Chairman, R. A. Doyle, East Prairie; H. M. Whelpley, St. Louis; H. C. Tindall, Excelsior Springs; Wm. Mittelbach, Boonville; Mrs. Minnie M. Whitney, Kansas City; Francis Hemm, St. Louis; Alfred W. Pauley, St. Louis. KANSAS.—Chairman, Mathias Noll, Atchison; L. D. Havenhill, Lawrence; J. S. Chism, Wichita; Maximillian W. Friedenburg, Winfield; David F. Deem, Stark; Oscar Joseph Schmitz, Atchison.

District No. 4. Chairman, W. H. Zeigler, 188 Tradd St., Charleston, S. C.—Including North Carolina, South Carolina, Tennessee, Georgia, Alabama, Mississippi, Florida, Arkansas, Louisiana, Oklahoma, Texas, Panama, Cuba, Porto Rico:

ALABAMA.—Chairman, Carl Whorton, Gadsden; W. E. Bingham, Tuscaloosa; Bernard H. Eichold, Mobile; Lawrence C. Lewis, Tuskegee; W. P. Thomason, Guntersville. ARKANSAS.—Chairman, Frank Schachleiter, Little Rock; M. A. Eisele, Hot Springs; Maynard H. Potter, Piggott; Miss Mary A. Fein, Little Rock. CUBA.—Chairman, José Guillermo Diaz, Havana; José P. Alacan, Havana; Alirio Diaz Guerra, Brooklyn, N. Y. FLORIDA.—Chairman, D. W. Ramsaur, Jacksonville; E. Berger, Tampa. GEORGIA.—Chairman, Robert H. Land, Jr., Augusta; Sinclair S. Jacobs, Atlanta; R. A. Rowlinski, Savannah; Robert Thomas, Jr., Thomasville. LOUISIANA.—Chairman, Christian Schertz, New Orleans, Fabius C. Godbold, New Orleans; Adam Wirth, New Orleans; Martial B. Casteix, New Orleans. MISSISSIPPI.—Chairman, Henry M. Faser, University; Gus C. Kendall, Meridian. TEXAS.—Chairman, J. C. Buckner, Galveston; J. M. Duggan, San Antonio; C. A. Duncan, Dallas; Zeb. W. Rike, Farmersville; Miss Columbus A. Shipe, Nacogdoches. PANAMA.—Chairman, Bolivar Jurado, Panama City; Oswald Chapman, Panama City. OKLAHOMA.—Chairman, D. B. R. Johnson, Norman; Frank A. Dinkler, Hennessey. NORTH CAROLINA.—Chairman, J. G. Beard, Chapel Hill; K. E. Bennett, Bryson City; Charles P. Greyer, Morganton; W. W. Horne, Fayetteville; Edward V. Zoeller, Tarboro. SOUTH CAROLINA.—Chairman, Joseph B. Hyde, Charleston; W. H. Zeigler, Charleston; S. C. Hodges, Greenwood; D. T. Riley, Florence. TENNESSEE.—Chairman, William R. White, Nashville; E. V. Sheely, Memphis. PORTO RICO.—Chairman, Narcisco Cabell Cabrero, San Sebastian; Miguel A. Veve, Fajardo.

District No. 5. Chairman, E. L. Newcomb, c/o University of Minnesota, Minneapolis, Minn.—Including Montana, Wisconsin, Iowa, Nebraska, Minnesota, North Dakota and South Dakota:

IOWA.—Chairman, Al. Falkenhainer, Algona; G. Scherling, Sioux City; Elbert O. Kagy, Des Moines; John M. Lindly, Winfield; Wilber J. Teeters, Iowa City; Geo. Judisch, Ames; Geo. A. Kiedaisch, Keokuk. MINNESOTA.—Chairman, G. Bachman, Minneapolis; William A. Abbett, Duluth; Wm. A. Frost, St. Paul; Chas. H. Huhn, Minneapolis; Robert L. Morland, Worthington; J. H. Beise, Fergus Falls; John Nelson, Lake Park; C. M. Judd, Rochester; R. J. Messing, St. Paul. NEBRASKA.—Chairman, R. A. Lyman, Lincoln; Henry R. Gering, Omaha; H. C. Newton, Omaha; D. J. Fink, Holdridge; Niels Mikkelsen, Kenesaw. NORTH DAKOTA.—Chairman, W. P. Porterfield, Fargo; Wm F. Sudro, Fargo; Oscar Hallenberg, Fargo; Henry L. Haussamen, Grafton. SOUTH DAKOTA.—Chairman, Anton Hogstad, Jr., Brookings; E. C. Bent, Dell Rapids; David F. Jones, Watertown; James Arthur Pool, Redfield; Earl R. Serles, Brookings. MONTANA.—Chairman, Charles E. F. Mollett, Missoula; J. W. Seiden, Lewistown; W. R. Montgomery, Butte; Emil Starz, Helena; Frank A. Scheuber, Livingston; Alex F. Peterson, Missoula. WISCONSIN.—Chairman, E. G. Raeuber, Milwaukee; O. J. S. Boberg, Eau Claire; B. J. Kremer, Fond du Lac; Geo. L. Sontag, Neillsville; H. G. Ruenzel, Milwaukee; W. W. Albers, Wausau; Otto E. Rydell, Superior.

District No. 6. Chairman, Joseph L. Lengfeld, 1505 Gough Street, San Francisco, California.—Including California, Nevada, Utah, Colorado, New Mexico, Philippine Islands:

CALIFORNIA.—Chairman, Joseph L. Lengfeld, San Francisco; Franklin T. Green, San Francisco; W. Bruce Philip, Oakland; George H. P. Lichthardt, Sacramento; A. R. Maas, Los Angeles. COLORADO.—Chairman. Charles J. Clayton, Denver; Frank E. Mortenson,

Pueblo; W. T. Hover, Denver; E. G. Fine, Boulder. NEVADA.—Chairman, W. R. Englert, Elko. NEW MEXICO.—Chairman, Bernard C. Ruppe, Albuquerque; Wayne W. Weitgenant, Raton. UTAH.—Chairman, John Culley, Ogden; W. H. Dayton, Salt Lake City; W. L. Eddy, Brigham City. PHILIPPINE ISLANDS.—Chairman, Eduardo Castillo, Manila; Juan Rosales Imson, Manila.

District No. 7. Chairman, C. W. Johnson, Coll. of Pharm., Univ. of Wash., Seattle, Washington.—Including Washington, Oregon, Idaho, Wyoming, Alaska:

IDAHO.—Chairman, H. H. Whittlesey, Pocatello; Clarence O. Ballou, Boise; Roy M. Spargur, Twin Falls; John J. Buehler, Pocatello. OREGON.—Chairman, Louis G. Clarke, Portland; Adolph Ziefle, Corvallis; George C. Blakeley, The Dalles. ALASKA.—Chairman, Zachary J. Loussac, Anchorage. WYOMING.—Chairman, Andrew Edward Roedel, Cheyenne; Charles Tomsik, Sheridan; Ray J. Cook, Casper. WASHINGTON.—Chairman, Charles W. Johnson, Seattle; Geo. H. Guy, Seattle; Cornelius Osseward, Seattle; G. Elmer Brown, Spokane.

District No. 8. Chairman, Charles F. Heebner, Ontario College of Pharmacy, Toronto, Ontario:

CANADA.—R. O. Hurst, Toronto; Henry Watters, Ottawa; Alexander Stewart, Guelph.

State and National Legislation Committee: Chairman, A. R. L. Dohme, Baltimore, Md.; John C. Wallace, New Castle, Pa.; E. G. Eberle, Philadelphia, Pa.; R. P. Fischelis, Newark, N. J.; A. G. DuMez, Washington, D. C.

United States Pharmacopœia Committee: Chairman, L. F. Kebler (1928), Washington, D. C.; Hermann Engelhardt (1933), Baltimore, Md.; A. B. Lyons (1924), Detroit, Mich.; William Mittelbach (1925), Boonville, Mo.; Reid Hunt (1926), Boston, Mass.; L. D. Havenhill (1927), Lawrence, Mass.; E. N. Gathercoal (1929), Chicago, Ill.; E. Fullerton Cook (1930), Philadelphia, Pa.; Arno Viehoever (1931), Washington, D. C.; H. A. B. Dunning (1932), Baltimore, Maryland.

Committee on Revision of the National Formulary: Chairman, W. L. Scoville, Detroit, Mich.; Clyde M. Snow, Chicago, Ill.; Otto Raubenheimer, Brooklyn, N. Y.; Leonard A. Seltzer, Detroit, Mich.; H. V. Arny, New York, N. Y.; H. Engelhardt, Baltimore, Md.; E. L. Newcomb, Minneapolis, Minn.; E. Fullerton Cook, Philadelphia, Pa.; H. A. B. Dunning, Baltimore, Md.; S. L. Hilton, Washington, D. C.; Chas. H. LaWall, Philadelphia, Pa.; Geo. M. Beringer, Camden, N. J.; P. Henry Utech, Meadville, Pa.; Bernard Fantus, Chicago, Ill.; O. A. Farwell, Detroit, Mich.

Committee on Recipe Book: Chairman, J Leon Lascoff (1924), New York, N. Y.; E. F Cook (1928), Philadelphia, Pa.; R. P. Fischelis (1928), Newark, N. J.; B. Fantus (1928), Chicago, Ill.; Wm. Gray (1928), Chicago, Ill.; L. D. Havenhill (1928), Lawrence, Kans.; E. N. Gathercoal (1924), Chicago, Ill.; I. Griffith (1924), Philadelphia, Pa.; J. Hostmann (1924), New York, N. Y.; P. H. Utech (1924), Meadville, Pa.; G. M. Beringer (1925), Camden, N. J.; S. L. Hilton (1925), Washington, D. C.; F. W. Nitardy (1925), Brooklyn, N. Y.; C. Osseward (1925), Seattle, Wash.

LETTER NO. 5.

(Abstract.)

To the Members of the Board of Directors:

11. Appointment of Committee on By-Laws of Board of Directors:

In accordance with the action taken at the second meeting of the Board of Directors, Chairman Beal has appointed the following committee to draft a set of by-laws to govern the transactions of the Board: Robert P. Fischelis, Chairman, Charles H. LaWall, E. F. Kelly.

12. Nominations to fill vacancy on list of nominees for Board of Directors, caused by withdrawal of H. B. Mason:

Complying with the call for nominations (Letter No. 2, Page 4, Item 4) the following names have been submitted: W. F. Rudd, L. L. Walton, H. C. Christensen.

13. Result of vote on Motion No. 1: Motion No. 1 (see Letter No. 2, Page 4, Item 5) has been passed by a unanimous vote.

14. Special Committee on Constitution and By-Laws: The special Committee on Constitution and By-Laws appointed by Chairman L. L. Walton, of the House of Delegates (see Letter No. 2, Page 4, Item 6), has received the approval of the Board.

15. Judicial Committee: The Judicial Committee appointed by President Arny (see Letter No. 2, Page 6, Item 7) has received the approval of the Board.

16. Election of Members: Motion No. 2 (Letter No. 3, Page 7, Item 8) and Motion No. 3 (Letter No. 4, Page 13, Item 10) covering applicants for membership numbered 1–69 inclusive have been passed.

17. Approval of Committee Appointments: The Committees on Legislation, U. S. P., N. F., Recipe Book, Syllabus, Ebert Prize, Local Branches and the Board of Canvassers appointed by President Arny (see Letter No. 4, Page 9, Item 10), have received the approval of the Board. The Committee on Membership has also received the approval of the Board but Secretary Day has communicated changes which were made necessary because of new addresses or withdrawals from membership.

18. Appropriation for Headquarters Building Committee.

(*Motion No. 4.*) *It is moved by Day, seconded by Fischelis, that an additional appropriation of $100.00 be granted for the work of the A. Ph. A. Headquarters Building Committee.*

19. New procedure for handling membership applications.

20. Special Committees: Chairman Walton of the House of Delegates submits the following appointments to the special Committees named:

American Joint Committee on Horticultural Nomenclature: Chairman, H. W. Youngken, Boston, Mass., F. E. Stewart, Philadelphia, Pa., E. N. Gathercoal, Chicago, Ill.

Coöperative Publicity Committee: Chairman, Robert P. Fischelis, Newark, N. J., H. V. Arny, New York, N. Y., Edwin L. Newcomb, Minneapolis, Minn., W. H. Cousins, Dallas, Texas, Ambrose Hunsberger, Philadelphia, Pa.

Committee to Coöperate with Committees from the A. C. P. F. and N. A. B. P. to Obtain Prerequisite Legislation: Chairman, R. A. Lyman, Lincoln, Nebr., E. F. Kelly, Baltimore, Maryland, C. B. Jordan, Lafayette, Ind.

Committee on Endowment Fund: Chairman, H. M. Whelpley, St. Louis, Mo., J. H. Beal, Urbana, Ill., C. O. Bigelow, New York, N. Y., Wm. B. Day, Chicago, Ill., John G. Godding, Boston, Mass.

Committee on A. Ph. A. Headquarters Building: Chairman, J. H. Beal, Urbana, Ill., John G. Godding, Boston, Mass., Leonard A. Seltzer, Detroit, Mich., E. L. Newcomb, Minneapolis, Minn., Chas. H. LaWall, Philadelphia, Pa., H. S. Noel, Indianapolis, Ind., Wm. B. Day, Chicago, Ill., W. H. Zeigler, Charleston, S. C., Joseph L. Lengfeld, San Francisco, Calif., E. F. Kelly, Baltimore, Md., H. M. Whelpley, St. Louis, Mo., S. L. Hilton, Washington, D. C., Frank H. Freericks, Cincinnati, Ohio, Jeannot Hostmann, New York, N. Y.

Committee to Draft Code of Regulations for the Sale of Poisons: Chairman, Jacob Diner, New York, J. H. Beal, Urbana, Ill., F. W. Nitardy, Brooklyn, N. Y., L. A. Seltzer, Detroit, Mich., W. A. Hover, Denver, Colo.

Committee on Quality of Medicinal Products: Chairman, Arno Viehoever, Philadelphia, Pa., George E. Ewe, Frederick, Pa., E. L. Patch, Stoneham, Mass.

In order to complete the record, approval is also sought of the following *Committee on Place of Meeting* appointed by Chairman Walton: T. J. Bradley, Chairman, Boston, Mass., W. F. Rudd, Richmond, Va., C. G. Merrell, Cincinnati, Ohio, R. A. Lyman, Lincoln, Nebraska, W. B. Philip, San Francisco, Calif.

21. Appointment of Special Delegates. President Arny has appointed C. H. LaWall and W. L. Cliffe to represent the A. Ph. A. at a special meeting to be called in Philadelphia shortly for the purpose of conferring on proposed clinical laboratory legislation in Pennsylvania and elsewhere.

22. Date of next annual meeting of A. Ph. A. Local Secretary Gregory writes that he has reserved the last three weeks of August at the new Hotel Statler, Buffalo, pending action by the Board of Directors on the time of the Seventy-Second Annual Meeting. Dean Gregory voices the opinion that the week of August 24th will be best suited for the meeting from the standpoint of climatic conditions. He requests prompt action on the matter of determining the meeting dates so that definite arrangements can be made in the near future.

23. Publication of Board Letters. It has been suggested that the letters to the Board of Directors be mailed to editors of reputable pharmaceutical journals with permission to publish such data as may be released by the Board and with a release date that will insure prior publication of the letters in the JOURNAL OF THE A. PH. A. The object of the suggestion is to secure greater and continuous publicity for the activities of the A. Ph. A. between meetings. Comments are invited.

24. Auxiliary Member of Committee on Committees. In order to gain the benefit of former Council Secretary DuMez' experience, Chairman Beal has appointed Dr. DuMez an auxiliary member of the Committee on Committees of the Board of Directors.

25. Who shall appoint these Committees? President Arny calls attention to the fact that no specific provisions have been made as to

who shall appoint the following committees and all delegates appointed by the A. Ph. A. to other meetings: Pharmaceutical Nomenclature, Health Insurance, Patents and Trade Marks, Physiologic Testing, Pharmacist in Government Service, Weights and Measures, Procter Fund, Time and Place of Meeting, Affiliation of Pharmacists and Physicians and Model Pharmacy Law. Dr. Arny writes: "My own view is that either the Board of Directors' Committee on Committees or our Judiciary Committee should take this subject up as their first duty and that when the question is settled our Committee on Constitution and By-Laws should make proper reference to these committees in our by-laws."

(*Motion No. 5.*) *It is moved by Fischelis, seconded by LaWall, that the matter of apportioning appointment of committees, not otherwise provided for, be referred to the Committee on Committees of the Board of Directors with instructions to make suitable recommendations to the entire Board.*

26. Meeting of Board of Directors. It is very plain that much of the business to come before the Board of Directors will require very careful consideration and discussion. Some of the matters referred to the Board by the Association at its Asheville meeting cannot very well be settled by correspondence. A meeting of the Board, after preliminary business has been completed, therefore, seems imperative.

(*Motion No. 6.*) *It is moved by Arny, seconded by Fischelis, that a meeting of the Board of Directors be held either immediately preceding or immediately following the meeting of the National Drug Trade Conference in Washington, D. C., early in December.*

ROBERT P. FISCHELIS,
Secretary, Board of Directors, A. Ph. A.

SYNOPSIS OF PROCEEDINGS OF THE TWENTIETH ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION BOARDS OF PHARMACY, HELD AT ASHEVILLE, N. C., SEPTEMBER 3–4, 1923.

The Twentieth Annual Convention of the National Association of Boards of Pharmacy met at the Kenilworth Inn, Asheville, N. C., on September third and fourth, 1923, with President Edward H. Walsdorf of New Orleans, La., presiding. It proved to be one of the most successful meetings ever held, not only in the matter of attendance, but in enthusiasm and accomplishment. Thirty-two States were represented with a total of sixty delegates. For the first time since the organization of the Association, we had present a representative of the New Mexico Board, Mr. D. W. Haydon, of Clayton, N. M.

Following the invocation by Rev. E. R. Welch of the Chestnut Street Methodist Church, Asheville, and a cordial address of welcome by the Hon. John H. Cathey, Mayor of Asheville, which was responded to by Mr. Lucius L. Walton of Williamsport, Pa., President Walsdorf delivered his presidential address.

In this address, President Walsdorf emphasized the obligations and privileges for helpful service possessed by this Association, not only through the Boards themselves, but in a larger way through coöperation with the allied associations.

One point advocated by President Walsdorf, and which received the approval of the Boards present, is the proposition to formulate a plan for the issuance of what—for want of a better name—must be called a National Certificate, to be issued to registered pharmacists possessed of definite qualifications which will probably be placed somewhat above the average minimum for registration, the idea being that while this certificate will not attempt to replace individual state registration, it will establish the status of the holder as above the average and entitle him to registration in any state without repeating the formalities usually required in reciprocal registration. It was suggested that the incoming President appoint a Committee of three to include the Secretary to consider and report on this plan.

President Walsdorf also recommended that action be taken looking toward reciprocity for Assistant Pharmacists. This would, of course, involve the establishment of some minimum standard for this class of registration, and could be made applicable in only those States having provision for assistant registration, but would undoubtedly lead to the recognition of the assistant as a definite factor in pharmacy, and a more general utilization of this valuable class of registrant. The incoming President was asked to appoint a Committee of three, to include the Secretary, to consider this matter and report.

The question of ownership of pharmacies by registered pharmacists was discussed by President Walsdorf, and the recommendation made that the Association prepare itself for a plan of education along this line. This was concurred in by the Association and in general discussion much valuable information was offered by members present at the meeting from the State of New York where a law providing for drug store ownership by pharmacists has just been passed. It was suggested that this be left in the hands of a Committee of three to be appointed by the incoming President, to include Mr. Edw. Bloomfield, Attorney, of Louisville, Kentucky, who has already furnished the N. A. B. P. with a brief on this subject which was published in the 1922 proceedings.

In the absence of Chairman Jarrett of the Executive Committee, W. P. Porterfield presented the report for the Committee, outlining the activities for the past year, with suggestions for the future which included, among other things, the holding of District meetings at different periods, to be arranged for through the Secretary's office, with the approval of the President, when proper representation can be arranged. The Chairman also reported that the audit made by Ernst and Ernst, Certified Public Accountants of Chicago, was checked and found correct. The supplementary reports for the balance of the year, submitted by the Secretary and the Treasurer, were audited and showed a gratifying increase in receipts for the year and a satisfactory condition of the Association finances.

The Committee stated that they believed the time has come when the Association should take steps to bring to the attention of appointing powers, the need for serious consideration of the qualifications which should be possessed by those appointed to serve on examining boards. This point was discussed at length and the recommendation of the Committee concurred in by the Association, and work along this line will be undertaken the coming year.

The Committee recommended further that licensing bodies should provide some method for prompt consideration and disposition of applications for reciprocal registration, for the reason that an applicant is entitled to a decision without delay and to prompt registration if qualified.

Lucius L. Walton, of Williamsport, Pa., who last year was delegated to appear as Unofficial Observer at the meeting of the National Conference on Pharmaceutical Research, explained the objects of this organization, and recommended that the N. A. B. P. affiliate with them. This met the approval of the Association and an official delegate will be appointed to attend the 1924 meeting.

Chairman Christensen, of the Committee on the Standardization of Colleges of Pharmacy, presented his report, which embraced an outline of requirements for colleges. This report was discussed at length, and after a few minor amendments, the outline of standards was accepted and approved by the N. A. B. P. to become effective with the college year 1924. Outline of standards is appended at end of this report, in connection with report of joint meeting of Boards and Faculties.

Following the report of Chairman Theodore J. Bradley, of the Syllabus Committee, which was presented by Mr. Culley, it was voted by the Association to continue affiliation with and annual contribution to this work.

Verbal reports were presented by the several district Vice-Presidents present, and all voice the enthusiasm existing among their member States, and the desire to coöperate with each other and the Association. A. C. Taylor of Washington, D. C., outlined the problems confronting them in their efforts to secure legislation, and the suggestion was made that, since District of Columbia legislation is in a sense a national matter, being handled by a committee from among the national executives, assistance be rendered District of Columbia pharmacists when next their legislation is about to come up by direct appeals to Senators from all members of this and allied associations. Word will go out from the Secretary's office when the time is ripe for this action, with information as to what legislation is desired and suggestions as to presentation of appeal.

Secretary Christensen pointed out in his report the fact that what in the past have been opportunities for service, have recently developed into insistent demands. To satisfy one of these growing demands, for quickly available information, it is not unlikely that it may be deemed advisable to preserve in the Secretary's office complete records of qualifications of applicants for reciprocal registration, these to be available for presentation at any future time in connection with any investigation or further registration of that particular applicant. This will be especially advisable when the time comes, as it no doubt will in the not far distant future when provision will be made for some form of National Certificate.

The report of the Legislative Committee, presented by Chairman John Culley, listed by title a large number of bills of all sorts, affecting pharmacy. Most of the legislative activity during the past year seems to have centered on defeating obnoxious bills. Only one of the states trying for the passage of prerequisite legislation was successful, namely, Washington, thus legalizing this requirement which was previously in effect by board ruling. As is so often the case, the defeat of most of the prerequisite legislation attempted is directly traceable to the fact that it was coupled up with undesirable legislation of some sort. Chairman Culley emphasized the need of confining efforts along legislative lines to the passage of one bill or clause at a time, as a confusion of interests usually results in the defeat of the entire measure.

An interesting tabulated digest of legislative efforts of the various States was given, together with suggestions for further activity, all of which will be printed in detail in the Proceedings, and which should receive careful study.

In closing his report, Chairman Culley gave a brief outline of examination and registration methods in Canada, and conveyed to the Association the request recently received from the Secretary of the Canadian Pharmaceutical Association that the N. A. B. P. send a representative to attend their next annual meeting and explain reciprocity as practiced in the United States with a view of helping them establish reciprocal relations between the various provinces of Canada, and eventually with the United States. This matter was left in the hands of the Executive Committee to arrange for representation at the next annual meeting of the Canadian Association.

Chairman H. L. Meredith of Maryland, of the Committee on Federal Legislation, made a brief verbal report in which he stated that while there had been no occasion for any activity on the part of the Committee this year because of no attempt at National Legislation, the need exists for constant contact with conditions at Washington, in order to be in position to act when necessary.

Chairman Christensen of the Advisory Examination Committee reported a steady improvement in examination questions and methods, due largely to the aid given by the Committee to Boards, in the preparation of examination questions, sample or type questions submitted, etc. The sample set of questions, with suggestions for conducting examinations, which was distributed last year to all Board Members, is still the standard, and all examining boards are urged to use this as a guide in the preparation of examinations. The Committee also emphasized the importance of Boards complying with Section 5 of the By-Laws, which provides that copies of all examination questions shall be sent to the Secretary's office as soon as possible after each examination.

Chairman A. L. I. Winne, in a verbal report for the Publicity Committee, stated that while the Association received considerable publicity throughout the year, through the coöperation of the individual drug journals, this could be increased and made much more effective by the adoption of a definite program, and Chairman Winne recommended that such action be taken.

Discussion at the joint meeting of the Faculties and Boards on Tuesday afternoon brought out the importance of the standardization of Board examinations and school courses, and the harmonizing of these two. Agitation in certain States in the effort to raise the requirements for entrance to college of pharmacy to one year of general college work in addition to high school graduation, brought about the introduction of this subject at the joint meeting, and it was the general opinion that it is not at this time desirable to increase the entrance requirements beyond the present conference standard of four years of high school.

The practical experience requirement of the model pharmacy law was discussed and approved. This retains the four-year experience requirement which is included in practically all pharmacy laws, with credit of two years for a two-year college course, and additional credit not to exceed one year for a three- or four-year course in pharmacy. This leaves in all cases the requirement of one year of practical experience, which, it was pointed out, may be obtained during vacation periods. Copies of the proposed model pharmacy law may be obtained from Secretary H. C. Christensen, 130 North Wells Street, Chicago, Ill.

The report of the Committee from the N. A. B. P. on requirements for standardization of schools and colleges of pharmacy was presented by Chairman Christensen, and after discussion and a few minor changes, this plan of standardization was approved by the joint meeting. Following this, the plan of the Faculties' Committee for grading the schools by a Committee of Seven, to be composed of three members from the N. A. B. P., two from the A. Ph. A. and two from the Faculties, in accordance with the standardization plan, was presented by Chairman D. B. R.

Johnson of Oklahoma, and also approved, after which it was recommended that the matter be placed before the American Pharmaceutical Association at the next general session for the appointment of their two representatives to serve on this Committee of Seven. Messrs. Lucius L. Walton, F. E. Mortenson and H. C. Christensen were appointed to represent the Boards on this Committee of Seven, and Professors D. B. R. Johnson and Chas. H. LaWall were appointed to represent the Faculties. The plan for standardization is printed on pp. 926–928.

The officers of the N. A. B. P. elected to serve for the ensuing year are as follows:

President—Frank E. Mortenson, Pueblo, Colorado.
Treasurer—J. W. Gayle, Frankfort, Kentucky.
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Vice-Presidents.

District No. 1—H. M. Lerou, Norwich, Connecticut.
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3—O. J. S. Boberg, Eau Claire, Wis.
(Ohio, Ky., Ind., Ill., Mich., Wis.)
4—W. W. Haire, Fort Dodge, Iowa.
(Minn., Iowa., N. D., S. D., Nebr.)
5—W. J. Cox, Memphis, Tennessee.
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6—J. F. Tilford, Wichita, Kansas.
(Ark., Kans., Mo., Okla., Texas.)
7—W. P. Thomason, Guntersville, Ala.
(Ala., Ga., Fla., La., Miss.)
8—Jos. L. Franken, Salt Lake City, Utah.
(Colo., Utah, Ida., Mont., N. M., Wyo.)
9—Arthur G. Hulett, Phoenix, Arizona.
(Ariz., Alaska, Calif., Nev., Ore., Wash.)

NARCOTIC STAMP RULES REVISED.

The Internal Revenue Bureau has issued Treasury Decision 3520, which amends Articles 67 and 70 of Regulations 35, as follows:

Adhesive strip stamps to be used in payment of the tax imposed on narcotic drugs and preparations under Section 1 of the act of December 17, 1914, as amended, are now issued in all the required denominations and sizes. Packages of narcotics have been sold on which stamps of larger size than those attached should have been used. For the information of those concerned and in order more nearly to effectuate the payment of this tax in the manner prescribed by the act, Articles 67 and 70, Regulations No. 35 (revised) are hereby amended, effective immediately, to read as follows:

"Article 67. Manner of Payment.—The tax is paid by attachment of stamps to the package forming the unit of tax (see Art. 68). One or more stamps of an appropriate size must be so affixed in the case of bottles, tins or other manufactured containers as to securely seal the stopper, lid or covering at two opposite points. If the package is not constructed with a stopper or covering designed for ready removal one or more stamps must be so affixed as to afford a secure seal for the package.

"Article 70. Kinds of Stamps.—Adhesive strip stamps are issued in the following denominations and sizes: One cent, $1^1/_2$ by $^1/_4$ inches; 1 and 2 cent, $2^1/_2$ by $^3/_8$ inches; 1, 2, 5, 6, 8, 10 and 16 cent, 4 by $^1/_2$ inches; 1, 2, 5, 6, 8, 10, 16, 25 and 40 cent, and $1 and $1.28, 6 by $^3/_4$ inches."

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Board of Directors."—Part of Chapter VI, Article VI of the By-Laws.

Article IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The 136th meeting of the Chicago Branch of the American Pharmaceutical Association was held at the University of Illinois School of Pharmacy Building, Friday evening, October 12, 1923, with President L. E. Warren in the Chair.

The Secretary presented a report for the Program Committee as follows:

November meeting: "Insulin—Its Discovery, History, Sources, Preparation, Therapeutics and Clinical Results," by Dr. David Klein and Dr. Robert W. Keeton.

December meeting: A reception to new members and entertainment, the entertainment and refreshments in charge of the Lambda Kappa Sigma sorority.

January meeting: "Some of the Unsolved Problems before the U. S. P. and N. F. Revision Committee," by Dr. E. L. Newcomb of Minneapolis.

A general invitation to members of the Revision Committees adjacent to Chicago will be extended and the meeting may take on the character of a Conference.

February meeting: "A Symposium on Cascara Sagrada"—Botany, by Prof. W. B. Day; Pharmacognosy by Prof. E. N. Gathercoal; Chemistry by L. E. Warren; Therapeutics by Dr. Bernard Fantus.

March meeting: "The Structure of the Atom"—to be presented by a well-known physical chemist.

April meeting: "Some New Things in Plant Studies—with the most modern illustrations, including X-ray pictures, motion pictures and photographs in natural colors."

The Secretary reported that for the year October 1, 1922, to September 30, 1923, 165 new members had been added to the Branch and 65 had been lost, but many of these on account of removal to other localities, and, therefore, are not lost to the membership of the parent Association. The Secretary further stated that in a careful compilation extending over the previous three years he was able to demonstrate that members from the college classes were no more prone to drop their membership after one, two or three years, than members from other sources. Furthermore, because the college classes are gathered from many States and outlying districts, the membership of the A. Ph. A. is being extended to these districts and we find, for instance in Illinois, that the membership is more widely scattered over the State than at any previous time in the history of the Association.

The meeting was devoted to a consideration of:

ASSOCIATION ACTIVITIES AT ASHEVILLE.

President Warren invited Secretary H. C. Christensen, of the National Association Boards of Pharmacy, to speak on the Asheville meeting, and he responded with a most interesting talk on the meetings of the National Association Boards of Pharmacy. He stated that this Association, which was a direct offspring of the A. Ph. A. and had always held its meetings in connection with the parent Association, had thirty-two State Boards represented at Asheville out of forty-four State Boards which are members of the Association. He stated further that the activities of the N. A. B. P. were becoming more and more devoted to the advancement and progress of pharmacy.

A plan is being worked out for the issuance of a National Certificate which will be the basis for the granting of State Certificates of registration with but slight delay; while the requirements for this certificate have not been fully

formulated, he felt confident that high school graduation would be one requirement, graduation from a class "A" School of Pharmacy would be a second requirement, and a higher average standing before the State Board a third requirement. Work is also being done on standardizing Assistant registration with the thought of bringing assistant pharmacists under the privilege of reciprocal registration. There seems to be no question that the registered pharmacist of the near future will not only be a high school graduate but a graduate from a four-year college course and will be highly trained professionally and technically. Such highly trained men and women should be in charge of the dispensing of drugs and medicines but there is a place for a less highly trained man to serve as the general drug clerk. About 1500 reciprocal registrations were handled by the N. A. B. P. during the past year. In Illinois about 80 pharmacists were registered by reciprocity and about 50 went out of the State under the same arrangement.

Mr. Christensen further discussed the system of standardizing Schools of Pharmacy. He asserted that, in fact, such standardization was greatly desired by the Boards of Pharmacy, especially in connection with reciprocal registration. He felt confident that the Association would proceed with the preliminary standardization of the schools which would afford some basis of standardization to the Boards and that some outside agency, such as the Carnegie Foundation, would take up a more extensive and complete standardization within a short time.

He felt the need of constant encouragement and development of the professional spirit among pharmacists, particularly the young men and women in the colleges of pharmacy, for the drug store, especially in the larger cities, frequently no longer represents what it should represent to the public. The pharmacist is granted special privileges by law, but these privileges will no longer be justified if the drug store continues its tendency toward commercialization. While it is true that one side-line after another has been added to the drug store in years gone by, yet it seems entirely unnecessary for any drug store to handle lunches and sell groceries. There are so many avenues in which professional pharmacy can very suitably and profitably enter that the taking on of these commercial lines certainly will result in a marked loss of the public confidence and support.

Secretary S. C. Henry, of the National Association Retail Druggists, in response to President Warren's request for his views on the Asheville meeting, stated that he considered the meeting very successful and that it showed more signs of life, activity and vigor in the A. Ph. A. than he had seen at any meeting for a long time. He endorsed the reorganization plan and stated that the officers and the staff of the N. A. R. D. were in nowise opposed to the plan. He felt, however, that unless the men and women who really have at heart the best interests of the A. Ph. A. watched carefully, a real danger lay ahead for the Association and that the splendid reputation for advancing higher standards of professional pharmacy built up by the A. Ph. A. through the last seventy years and more might be seriously impaired. The Asheville meeting did a great deal to cement the friendship between the A. Ph. A. and the N. A. R. D., especially in the joint meeting of the Executive Committees of each body.

Prof. W. B. Day, General Secretary of the A. Ph. A., said that he considered the Asheville meeting very successful not only in the actual accomplishments of the meeting but particularly in the spirit in which the work was done. There is to be found in every organization which has attained some considerable age, a group of older members which looks askance at a younger group who are inclined to overrun the old established bounds and take things in charge. The successful organization is one in which a perfect equilibrium is established between these two groups. In regard to the reorganization instituted at this meeting, Professor Day expressed the opinion that as long as the destinies of the Association were in the hands of members of the Association he was perfectly satisfied. The House of Delegates will be made up of one delegate from each active Local Branch of the Association; one delegate from each State Association with a membership up to 500 and an additional delegate for each 500 members; one delegate from each Section of the Association and all of the officers of the Association. Thus it will be seen that the House of Delegates will undoubtedly be composed of active members of the Association with the interest of the Association strongly at heart. Likewise, the Board of Directors will undoubtedly be made up of men who are active leaders in the Association. The Secretary discussed the prospects for the headquarters building and aroused the enthu-

siasm of the meeting in his splendid description of the various offers made at Asheville to this project.

Prof. C. M. Snow who spoke next stated that as a great deal had already been said regarding the various business and professional activities presented at Asheville, he would discuss for a few moments one of the items that had very greatly impressed him, namely, the beauty and majestic surroundings of the meeting place. He thought that they compared very favorably with the scenery in Colorado. He stated that of the fifteen meetings he had attended he never had had a more enjoyable time than at this one. All of the entertainment was fine. He described the trip to Chimney Rock, the Cave with the moonshine still, the 80-mile all day trip to the top of Mt. Mitchell, the entertainment at Grove Park Inn on Sunset Mountain and the wonderful organ recital that was enjoyed at this hotel.

Professor A. H. Clark, in response to an invitation to speak, presented a rather different side of the picture. Professor Clark with Mrs. Clark and their son traveled from their summer home in Michigan to Asheville and from there to Atlanta, Ga., and back home by way of Chattanooga and Louisville in "the Ford." While he heartily agreed with Professor Snow's description of the beautiful roads about Asheville, he said that after going a short distance away from Asheville, the roads very markedly change their character and if anyone desired to give his car all of the known tests for power and mechanical efficiency all he needed was a trip over some of these mountains. Professor Clark spoke of Dr. Venable's splendid address on Radio-activity, which address was one of the prominent features of the meeting.

William Gray, in speaking of the work of the Section on Practical Pharmacy and Dispensing, discussed particularly Dr. Krantz's address on the preserving properties of sugar solutions as compared with those of glycerin.

Considerable comment was made on the frequent rains and fogs and the difficulties of obtaining nice snap-shots. However, many pictures were taken of especial note, particularly those by Mr. I. A. Becker and Professor Clark.

E. N. GATHERCOAL, *Secretary.*

CINCINNATI.

Cincinnati Branch of American Pharmaceutical Association met Tuesday, October 2, at Lloyd Library. Central Parkway bond issue was indorsed. Mrs. Bertha Ott spoke of the Asheville meeting. Resolutions were adopted urging the establishment of an adequate National botanical garden in or near Washington, D. C. Caswell A. Mayo gave an illustrated lecture on "The Great Botanical Gardens of the World."

DETROIT.

The first regular meeting of the Detroit Branch, A. Ph. A., for the year 1923–1924 was held at the Wayne County Medical Association, October 12, 1923.

After the usual excellent supper, the meeting was called to order by President Crandall.

The minutes of the last meeting were read by the secretary and approved.

President Crandall delivered an inaugural address in which he reminded the members of the high ideals of the Association, and the standing in the pharmaceutical world of many of its members, which should appeal to every wide-awake pharmacist. He appealed to the members for a large increase in the membership of the Association, not alone in number, but in quality.

President Crandall appointed Messrs. Gorenflo, Washburne, Hall and Chase to the membership committee and Mr. Chostner as chairman of same. Mr. Jones asked that Messrs. Grommet, Scoville, Chase, Bye and Stocking serve on the program committee of which he is chairman.

Mr. Jones announced the speaker of the next meeting would be Mr. William M. Wallace, chief chemist and superintendent of the Filtration Plant of the Detroit Water Board. He is to speak on the Construction of the New Filtration Plant.

Mr. Grommet and Mr. Webster suggested various means of increasing the attendance at the meetings, which were carefully noted by the Secretary.

Mr. Chase reminded the Branch that six meetings must be held during the year with the required representation in order to retain a representative delegate.

After the disposal of the regular business President Crandall introduced the speaker of the evening, Dr. Henry Kraemer, who was heartily received by a large attendance.

As it was Columbus Day, the speaker chose to make a few fitting remarks to pay tribute to this Searcher of Nature. He accompanied his remarks with slides of the courageous and

heroic discoverer of America. Then Dr. Kraemer continued to add more color in his talk on "Color in Pharmacy" by his many humorous remarks and colorful slides of Nature's beauty. His address, in part, follows:

"Color plays an important part in the work of the apothecary. It is one of the principal characteristics in the recognition of chemicals, drugs and their preparations. The blue crystals of copper sulphate are distinctive as are also the large red prisms of potassium permanganate, or the large colorless crystals of alum. Crude drugs are largely identified by their colors and one of the chief attractions of the druggist's shop is the array of colored tinctures, syrups, and other preparations.

"Some new colors were shown in the making of tooth powders and dentifrices. Among these were Kino, Krameria and Red Sandalwood. A new mouth wash was shown consisting of equal parts of tincture of *Quercus alba* and Tincture of Sassafras. Lactose was suggested in preference to cane sugar in the making of tooth powder. It was suggested that all coloring solutions used in the making of tooth powders be in the liquid form and added directly to a portion of the precipitated calcium carbonate. This is then dried before being mixed with the remaining portions of precipitated chalk and other ingredients."

A formula was given for an antiseptic mouth wash to be used in the treatment of sores of the mouth and tongue. It is especially applicable to the irritations of the tongue which cigar users often suffer. It is as follows:

Phenol	2 cc
Glycerin	3 cc
Distilled water *qs. ad*	100 cc
Tr. Brazil Wood	*q. s.*

"Color in Nature is appreciated by all. The green grass, the red rose and the golden grain have awakened us all at times. Animal colors are for the most part optical effects and are due to refractions of light. Plant pigments, however, are chemicals which may be extracted. They are of two kinds: one soluble in water, and to this class belong the red, blue, lavender and all other shades except green and yellow. The latter colors are soluble in strong alcohol and the immiscible solvents, as ether, chloroform, toluol, etc."

A large number of lantern slides in colors were shown illustrating color in flowers and landscapes. Views were also shown of the location of the pigments in the floral organs and the chemical reactions of the extracted pigments in the floral organs and the chemical reactions of the extracted pigments. Dr. Kraemer said that in all, there were thirty distinct pigments or shades of color to be found in plants. This includes bacteria, the delicate sea-weeds, the highly colored mushrooms, and the color parts of higher plants. White is an absence of color and is due to large intercellular spaces in the unpigmented cellular tissue.

He was not reluctant in divulging information necessary in acquiring fortunes for his listeners with simple formulas obtained from nature and color.

At the conclusion of his talk he willingly answered all questions asked by the assembly.

A rising vote of thanks was tendered Dr. Kraemer.

A supper precedes the meetings of the Detroit Branch, A. Ph. A.

BERNARD A. BIALK, *Secretary.*

NEW YORK.

The October, 1923, meeting of the New York Branch of the American Pharmaceutical Association was called to order in the Lecture Hall of the New York College of Pharmacy, October 8, with President Holton in the Chair.

Thirty-one members and friends were present.

The minutes of the preceding meeting were read and approved.

Treasurer's Report: The Treasurer's report was received and ordered filed.

Fraternal Relations: Mr. Lehman reported progress.

Membership: The following applications were received for membership in the parent organization.

Joseph G. Noh, 24 Pennington St., Newark, N. J.; Chas. F. Keale, 616 Myrtle Ave., Brooklyn, N. Y.; L. C. Jayne, 7 South Maryland Ave., Port Washington, N. Y.

Audit Committee: Dr. Diner reported all bills paid.

Member of Council: Dr. Diner reported that since the A. Ph. A. reorganization no Council existed; no report therefore could be brought in. It was pointed out, however, that Dr. Diner automatically became a member of the House of Delegates, representing the New York Branch therein.

Communications: A letter read from the Secretary of the New York Pharmaceutical Conference.

Dr. Diner reported that the New York Academy of Pharmacy is now incorporated by the Board of Regents, thereby becoming an institution for educational purposes.

Dr. Diekman brought in a report consisting of abstracts of interesting articles from various journals.

Convention reports were now read. Dr. Hostmann read a lengthy report of the A. Ph. A. meeting. Considerable discussion followed in which Doctors Diner, Anderson and Fischelis participated. It was suggested that the next meeting of the Branch be devoted to a discussion of the question as to whether longer college training is desirable for pharmacists. Dr. Fischelis read a report of the New Jersey meeting, while Mr. Canis read his report on the New York State meeting.

Dr. Wimmer presented a written report of the Connecticut Pharmaceutical Association meeting which was read by the Secretary.

A vote of thanks was extended to all speakers.

Mr. Currens, Chairman of the Local Transportation Committee, submitted a money order for $3.75 which the Railroad Company returned as a rebate. It was voted that this be turned into the treasury.

HUGO H. SCHAEFER, *Secretary.*

UNIVERSITY OF NORTH CAROLINA.

The first meeting of the University of North Carolina Branch of the A. Ph. A. for the year 1923–24 was held Thursday evening, September 27, in Phillips Hall. Forty-five members were present, a much larger number than in attendance at the first meeting last year. Seven applications for membership were received and accepted. The membership committee reported that many other students have signified their intention of affiliating with the organization.

At this meeting the officers for the ensuing year were installed. These officers are: *President*, W. A. Ward; *First Vice-President*, L. P. Brookshire; *Second Vice-President*, H. E. Rees; *Secretary-Treasurer*, C. R. Whitehead; *Historian*, E. V. Howell.

After the installation of officers President Ward appointed the following committees: Executive—J. L. Alderman, *Chairman*, J. H. Kirby, H. E. Rees; Membership—M. D. West, *Chairman*, F. H. Fleming, E. E. Adams; Abstracts—W. M. Mauney, *Chairman*, A. C. Wallace, L. P. Brookshire; Program—E. V. Kyser, *Chairman*, W. R. McDonald, Jr., H. C. Ross; Legislative—J. G. Beard, *Chairman*, F. O. Bowman; Pharmaceutical Progress—M. B. Melvin.

Following the business session there was a discussion of abstracts from various journals led by Messrs. A. C. Wallace and W. R. McDonald, Jr., after which Prof. E. V. Kyser delivered a most interesting illustrated lecture on the "Distillation of Volatile Oils in the United States." The slides for this lecture were prepared from photographs taken by Mr. Chas. V. Sparhawk, of New York. The Branch extended a vote of thanks to Mr. Sparhawk for his kindness in lending the slides and material for the lecture.

C. R. WHITEHEAD, *Secretary.*

PHILADELPHIA.

The first regular meeting of the Philadelphia Branch, A. Ph. A. for the year 1923–1924, was held at the Philadelphia College of Pharmacy and Science, Tuesday, October 9, with President R. C. White in the chair.

The minutes of the last meeting were read, Adley B. Nichols acting as Secretary in the absence of J. W. E. Harrisson.

One new member was elected, John N. Mohr, Reading, Pa.

The speaker of the evening, Dr. H. C. Wood, presented a most interesting paper on the newer remedies and preparations used in present-day therapeutics. He spoke of various groups of preparations and discussed types of each, pointing out their main differences and their particular uses in medicine. Chaulmooga oil and its application in the treatment of leprosy, arsphenamine, surgical antiseptics, such as Dakin's solution, Dichloramine T, Chlorcosane, Chlorazene and Silver Proteinates, the newer anesthetics, Procaine, Novocaine and Anesthesin, and narcotics, represented by veronal, luminal, adalin, urethane and others. Many of these preparations have been accepted for the new United States Pharmacopœia and Dr. Wood explained very fully and carefully the need and value of each one.

There was considerable discussion of the paper and a rising vote of thanks was tendered Dr. Wood.

ADLEY B. NICHOLS, *Secretary pro tem.*

ACTIVITIES OF NEW YORK PHARMACISTS.

Pharmacists of New York have discussed the advantages that may be derived by employing a paid organizer, who will bring about more effective organization work and promote the interests of pharmacists.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Board of Directors, A. PH. A.: JAMES H. BEAL, *Chairman;* S. L. HILTON, *Vice-Chairman;* ROBERT P. FISCHELIS, *Secretary;* CHARLES H. LAWALL, HENRY M. WHELPLEY, JOHN G. GODDING, GEORGE M. BERINGER, CHARLES E. CASPARI, W. L. SCOVILLE. *Ex-Officio:* H. V. ARNY, President; WILLIAM B. DAY, Secretary; E. F. KELLY, Treasurer.

Collaborators: The members of the Board of Directors; the Editor of the YEAR BOOK, A. G. DUMEZ, Hygienic Laboratory, Washington, D. C.; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; W. L. SCOVILLE, Chairman, N. F. Revision Committee; the Vice-Presidents-elect, A. Ph. A.: LYMAN F. KEBLER, F. E. BIBBINS, W. BRUCE PHILIP; the Chairmen of the Sections, A. Ph. A.: J. P. SNYDER, G. A. BERGY, ROBERT J. RUTH, HENRY B. SMITH, CLYDE L. EDDY; L. L. WALTON, Chairman of the House of Delegates, A. Ph. A.: CHARLES W. JOHNSON, President A. C. P. F.; CHARLES B. JORDAN, Chairman Executive Committee, A. C. P. F.; F. E. MORTENSON, President, N. A. B. P.; HENRY C. CHRISTENSEN, Secretary, N. A. B. P.

ABSTRACTS OF RECENT SCIENTIFIC PAPERS.

MIRE (MEÉ-RAY).

By H. H. Rusby, M.D.

The botanical origin of this botanical drug is not as yet established, inasmuch as only roots and leafy stems could be collected from the mire shrub. So far as is known to the natives of the producing region, the plant is so scarce as to prevent commercial possibilities, except as a result of cultivation.

PRELIMINARY REPORT ON STUDIES OF MIRE.

By Thomas S. Githens, M.D.

The active principles, not thus far isolated, seem to be completely extracted by hot water, and by various strengths of alcohol from 10 per cent. to 95 per cent. Extraction by ether, chloroform and acetone yields weaker preparations, though similar in action. The active principles were not injured by boiling and were not volatile with steam.

While there is no curare action, mire causes, among other changes, paralysis of voluntary motion by an action on the spinal cord.

PROGRESS IN VITAMINE RESEARCH.

By Casimir Funk and Harry E. Dubin.

Vitamine research has advanced along three lines—first, the demonstration of the actual existence and the nature of specific vitamines; second, the study of the vitamine content of various foodstuffs, raw and cooked; and third, investigation of the chemistry of the vitamines.

While advances have been made all along the line, the most important progress has been in the discovery of new vitamines to account for a number of disturbances in normal nutrition. It is in this direction that we must look for the most fruitful developments.

MICRO-METHOD FOR THE DETERMINATION OF FERRIC ION CONCENTRATION IN COLLOIDAL SYSTEMS.

By Newton Kugelmass.

A colorimetric micro-method is described for determination of free, combined and total iron inorganic or organic combination in colloidal solutions, as blood, urine, milk, etc. The method consists of direct complete extraction of the formed ferric thiocyanate by isoamyl alcohol and comparing the more intense colored isoamylic layer with a parallel prepared standard. The physico-chemical equilibria involved in the color reaction are considered as well as the conditions for the maximum sensitivity of the method. This colorimetric method for minute amounts is more accurate than either the volumetric or gravimetric; the analysis is rapid, not requiring more than ten minutes.

PHARMACOLOGY OF CADMIUM AND ZINC.

Schwartze and Alsberg state that in the case of animals that vomit, such as cats, the chief effect of the oral administration of cadmium and zinc salts is emesis, which is dependent on the concentration in which these substances are present in the gastric contents. This local effect varies with the character of the food, being more powerful when the metals are administered in diets of liquids than when administered in those of raw hashed, lean meat. The consumption of an average-sized meal of raw hashed meat containing from 350 to 400 parts per million of cadmium or 3000 parts per million of zinc is almost always followed by emesis. Cadmium calculated as the metal is eight to nine times more effective as an emetic than zinc.—Abstract from *Journal A. M. A.*

PERSONAL AND NEW ITEMS.

Paul H. Fall, of Chicago, has been awarded the $2000 fellowship to be given annually by the Palmolive Company for the study of the chemistry, physics and colloidal principles involved in the detergent action of soaps. Mr. Fall will conduct his researches at Cornell University.

J. T. Lloyd, of Cincinnati, attended the fortieth annual meeting of the Texas Eclectic Medical Association, held at Mineral Wells. He contributed to the program of the Scientific Section, A. Ph. A., in Asheville.

Paul S. Pittenger delivered a lecture on "Accurate Therapeutics Based on Drug Standardization," being one of the series of lectures held in connection with the post-graduate course at the University of Buffalo School of Medicine.

F. S. Bukey has accepted a position as instructor of pharmacognosy and botany in the School of Pharmacy at Western Reserve University, Cleveland. Mr. Bukey is a graduate of the University of Nebraska.

Herman A. Metz is now one of the three honorary deputy police commissioners of New York City, appointed by Commissioner Enright.

Frederick H. Baetjer, of Johns Hopkins Hospital, who has an international reputation as an X-ray expert, has had to return to his own hospital for treatment for an affection of the arms brought about by exposure to the Roentgen rays.

G. Barret Moxley, president of the Kiefer Stewart Drug Company, was elected President of the National Wholesale Druggists' Association at the recent meeting held in Cleveland.

Wilhelm Bodemann gave an interesting account of the recent N. A. R. D. convention in the *Apotheker-Zeitung.* He was particularly well pleased with the Silver Anniversary Luncheon when charter members of the N. A. R. D. and members of the C. V. D. A. assembled.

Prof. Dr. H. Thoms and wife are reported safe and well in Japan.

Carl Meyer, president of Meyer Bros. Drug Co., has been elected president of the "St. Louis Ad Club." His devotion to civic duties and public affairs greatly contributed to the success of the "Aero Congress and Air Meet" held in St. Louis, Oct. 1–6.

J. Leon Lascoff was chairman of a special Retail Druggists' group, formed in accordance with the campaign plan of organizing the entire city into various industrial, mercantile and professional groups to facilitate the Roll Call effort for the Red Cross. A special Roll Call committee of representative leaders among the retail druggists functioned under the chairmanship of Mr. Lascoff.

J. W. Sturmer spoke on "The Great American Rubber Industry," November 8th, at the Philadelphia College of Pharmacy and Science. This is one of the popular science lectures provided by this institution for the public. The first of the series was given October 11th by **Dr. Henry Leffmann** on "Some News from Outer Darkness," and the second one, "Wire and Wireless Telephony," was the subject of **George Rosengarten.** "Chemistry in and about the Home," by **Freeman P. Stroup;** "Water," by **Ralph R. Foran,** and "Idiosyncrasies, or the Story of a Sneeze," by **Ivor Griffith,** are subjects of succeeding lectures.

Henry C. Kruckeberg, veteran Minneapolis pharmacist, was assistant secretary of the N. A. R. D. convention in Boston and participated in the Silver Anniversary Luncheon as representative of the Minneapolis Veteran Druggists' Association.

J. W. Cookson, of Wichita, Kas., was elected second vice-president of the N. A. R. D. He was one of the organizers and has attended 21 out of the 25 annual meetings.

Charles Ehlers is president of the North Cincinnati Business Men's Association.

Marie E. Piesinger, of New Prague, president of the Minnesota Board of Pharmacy, has been instrumental in organizing a women's pharmaceutical association of her State, with fourteen charter members.

A number of marriages are reported in the current issue of the *Carolina Journal of Pharmacy.* Among the registrants of the Asheville A. Ph. A. meeting we find the name of Miss Theo Twitty, of Asheville. The Journal mentioned announces the marriage of Miss Theo Bryan Twitty to Mr. E. A. Watkins and states "that Mrs. Watkins is one of the few women in North Carolina engaged in the profession of pharmacy; she is a member of the drug firm of Powell & Twitty, of Asheville."

J. L. Alderman, of Chapel Hill, and Miss Mary Goodwin, of Edenton, announce their marriage. Mr. Alderman is a member of the firm of Sutton & Alderman.

The marriage of Miss Eleanor Lambdin to **Mr. Sam Sowell** is also announced. Mr. Sowell was an officer of the U. of N. C. Branch

A. Ph. A., and one of its organizers. He is associated with his brother in the Clyburn Drug Company, of Camden, S. C.

REPORTS OF THE MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

It is unnecessary to dwell upon the coöperation of the pharmaceutical press in giving publicity to the work of the American Pharmaceutical Association and relating to the Asheville convention. All of these publications are represented in the Association and therefore, quite naturally, are interested in its promotions, but it is a source of great satisfaction to record in these columns grateful appreciation of the reports which have been published.

NOBEL PRIZE FOR INSULIN.

The Nobel prize for medicine for 1923 has been awarded to Dr. Frederick G. Banting and Dr. J. J. R. MacLeod, of Toronto, for their discovery of insulin.

Joint Winners of 1923 Nobel Prize for Medicine.

Drs. J. J. MacLeod (upper) and F. G. Banting, Toronto, Joint Winners of the 1923 Nobel Prize for Medicine, Discoverers of Insulin.—Courtesy of *Philadelphia Bulletin*.

Dr. F. G. Banting was overseas for three years during the war and served with distinction, being awarded the military cross for valor. Upon his return he held posts at the Christie Street Hospital for disabled soldiers, Toronto, and later at the Sick Children's Hospital here. Finally he devoted himself to research work in the Connaught laboratory of the University of Toronto.

Prof. J. J. R. MacLeod received his medical training in Aberdeen, London and Leipzig. He was awarded the Anderson Traveling Fellowship at the University of Aberdeen and became examiner and professor of physiology in the medical faculty, later being made associate dean of the faculty. He is the author of an important work dealing with the physiological pathology of diabetes.

Dr. Banting said he deeply appreciated the assistance of his co-workers, particularly of Dr. C. F. Best, whom he wished to share the Nobel award "both in the honor and financial aspect." He said he would devote the rest of the money to medical research.

RESOLUTIONS OF THE N. A. R. D.

Thirty-seven resolutions were adopted by the N. A. R. D. at the recent meeting in Boston. They support: Perpetual registration of soda fountains, affiliation of State and Local Associations, truth in advertising, reasonable profit, college education requirement, ownership of pharmacies by pharmacists, the Kelly Bill, manufacturers who coöperate, withholding issuance of "I" permits until after a pharmacy has been established for a year, automatic renewal of "H" permits, enforcement of the 18th amendment according to law, placing responsibility for medicinal prescribing on physicians, appointment of pharmacists for prohibition directors and assistant directors, a survey of pharmacy and pharmaceutical education. Other resolutions relate to alcohol and narcotic regulations supporting prior actions of the N. A. R. D.; sales tax is opposed, also unfair trade practices, certain phases of advertising, consolidation of State Boards. The Commissioner of Internal Revenue is commended, also Congress in its action on the Wood-Ernst Bill. Appreciation is expressed of the services of Secretary S. C. Henry and the efficient office force, for services rendered by the Alcohol Trades Advisory Committee and of those who participated in making the Silver Anniversary convention a success.

The code of ethics, as adopted by the American Pharmaceutical Association, was adopted by the N. A. R. D. A resolution authorizes the securing of permanent headquarters.

OBITUARY.

CHARLES ASCAU APMEYER.

Charles A. Apmeyer, who died October 29, at his residence on East Auburn Avenue after a long illness, at the age of 58, was one of the best known pharmacists in Cincinnati. Mr. Apmeyer was born in Hamburg, Germany, and came to Cincinnati at the age of fifteen and entered the employ of the Overcamp's Drug Store in the West End. He graduated from the Cincinnati College of Pharmacy and served as professor of practical pharmacy in that college for twenty-five years. For more than seventeen years he was professor of general and inorganic chemistry in the Eclectic Medical College. He published a series of papers on analytical chemistry in the *Eclectic Medical Journal*, and also published articles on pharmacy in the JOURNAL OF THE AMERICAN PHARCEUTICAL ASSOCIATION. In 1892 he opened a pharmacy at Corry and Vine Sts., and has conducted a store at various locations since that time, having been for the past eleven years at Vine and Auburn Avenues. He was a member of the Ohio Valley Druggists' Association and the American Pharmaceutical Association. He affiliated with the latter organization in 1906 and was for a number of years secretary of the Cincinnati Branch. In 1893 Mr. Apmeyer was married to Miss May Maurer of North Bend, Ohio, who survives him. He leaves no children.—CASWELL A. MAYO.

DEATH OF CHARLES P. STEINMETZ.

Work in which the sciences are concerned almost invariably, if not always, has some relation to pharmacy. On October 25th, scientists announced successful experiments carried on by the Westinghouse Electric Manufacturing Company, in collaboration with Columbia University, which demonstrated that with electric light one-fourth the potency of the sun's rays, plants may be matured in considerably less time than normally transpires. This may eventually have a part in drug plant growing or in developing plants for medicinal constituents.

Such reference is probably unnecessary for making a record in this publication of the passing of the wizard of electrical production and control. His work is an outstanding contribution to science—he devoted himself to it with a positive creative force and he became the leader in research in the lines of his investigations. The name of Charles Proteus Steinmetz will not be forgotten. He was the author of ten or more books, authorities on the subjects treated; was professor of electrical engineering and electrophysics in Union College; for a time president of the Board of Education of Schenectady and also served as president of the Common Council of that city.

SOCIETIES AND COLLEGES.

EXPRESSIONS RELATIVE TO RESULTS ACCOMPLISHED IN ASHEVILLE.

Most of those who have given expression relative to the work accomplished at the Asheville meeting of the American Pharmaceutical Association mention among the outstanding accomplishments the putting into effect of the reorganization plan and the progress made in creating real interest for the permanent headquarters. Most of the resolutions adopted have been favorably commented on, and also the undivided attendance and interest of members in the proceedings. All have praise for the Local Secretary and the committees for the successful management of the meeting and entertainments, and were charmed by the wonderful scenery. From these viewpoints that of the individuals branches out to those in which they are most concerned. Some dwell on papers, others on the successful programs of sections and the progress made toward standardizing schools, the action of the Research Conference, the meetings of the A. C. P. F. and of the N. A. B. P. "Organization and coöperation were words generously employed and the desire to help constantly evidenced." An expression of the latter was emphasized in the meeting of the executive committees of the N. A. R. D. and A. Ph. A.

This is a general comment, largely by reference, and there is no effort made to stress any of the points which have been mentioned, and there were others which will be read in between the lines. A most important result, expressed in the making of the reorganization plan effective, is that of bringing into close affiliation the State Associations. The working of

the State Association with and within the American Pharmaceutical Association has greatest significance for American pharmacy; a growing interest and enthusiasm will redound to the benefit of all concerned. The greater number of retail pharmacists should join in this work for greatest accomplishment; therein is the success of the organization.

SUBSCRIPTIONS TO AMERICAN PHARMACEUTICAL ASSOCIATION HEADQUARTERS BUILDING FUND.*

No.		
	Previously reported	$9009.40
187.	John Rettberg, Peoria, Ill., (Paid)	25.00
188.	Louis Pelikan, Chicago, Ill. (Paid $5)	25.00
189.	Lee M. Pedigo, Chicago, Ill. (Paid $5)	25.00
190.	Redmond Mayo, Washington, D. C. (2nd subscription)	25.00
191.	Geo. L. Genz, Chicago, Ill. (Paid)	25.00
192.	Indiana Pharm. Assoc., per W. A. Oren, Sec'y.	500.00
193.	Jos. F. Reinhart, Peoria, Ill. (Paid $5)	25.00
194.	Lyman W. Griffin, Allston, Mass. (Paid)	10.00
195.	Edwin F. Leonard, Springfield, Mass. (Paid)	20.00
196.	P. J. Kolb, Chicago, Ill. (Paid)	10.00
197.	T. S. Wakefield, Oak Park, Ill. (Paid $5)	25.00
198.	Leon A. Thompson, Boston, Mass. (Paid)	5.00
199.	Alfred A. Burnham, Boston, Mass. (Paid)	10.00
200.	Samuel L. Antonow, Chicago, Ill. (Paid $100)	500.00
	Total	$10,239.40

MINUTES OF THE HOUSE OF DELEGATES IN THIS ISSUE OF THE JOURNAL.

Attention of the delegates to the House of Delegates, A. Ph. A. and secretaries of State Associations is directed to the minutes of the House of Delegates in this number of the JOURNAL. The resolutions adopted at the Asheville convention are printed in the October issue.

NORTH CAROLINA MEMBERSHIP IN THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Carolina Journal of Pharmacy, in its current number, lists 130 members of the American Pharmaceutical Association in North Carolina; 94 of these are also members of the State Association.

MASSACHUSETTS COLLEGE OF PHARMACY TO CELEBRATE CENTENNIAL NOVEMBER 15.

The centennial celebration of the organization of the Massachusetts College of Pharmacy is to be held on November 14. There will be exercises in George Robert White Hall, at the college, in the afternoon, and a banquet at the Copley-Plaza in the evening. A large attendance of visitors is expected.

OHIO PHARMACISTS AIDED IN DEFEATING TWENTY-ONE BAD BILLS AND PASSING FOUR GOOD ONES.

The legislative committee of Ohio Pharmaceutical Association reported that twenty-one bills before the last session of the State legislature were defeated by the activities of the association, in coöperation with two druggist members of the legislature, and four bills sponsored by the association and its committee were enacted into law. The successful measures improved the State narcotic law, the denatured alcohol law, the pharmacy registration law and the State prohibition law.

TENNESSEE PHARMACEUTICAL ASSOCIATION WAS SUCCESSFUL IN AMENDING THE STATE PHARMACY LAW.

A much-needed amendment to the Tennessee pharmacy law was passed by the State Legislature. U. S. Senators Shields and McKellar attended the meeting of Tennessee Pharmaceutical Association.

WASHINGTON STATE PHARMACEUTICAL ASSOCIATION WILL EMPLOY FULL-TIME SECRETARY.

As reported in the minutes of the House of Delegates, in this issue of the JOURNAL, Washington pharmacists contemplate employing a full-time secretary and a movement is on foot to strengthen the State Association and extend its service.

* For other and previous reports see JOURNAL A. PH. A., Volume XI, pp. 392, 644, 872, and in Volume XII, pp. 90, 555, 825, 837, 904, 907 and 909.

TRI-STATE COUNCIL.

Washington, Oregon and Idaho pharmaceutical associations contemplate a tri-state council, whereby the respective State Associations will work together in common purposes for the advancement of pharmacy.

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The officers elected at the annual meeting of the National Wholesale Druggists' Association are as follows: *President*—George Barret Moxley, Indianapolis, Ind.; *First Vice-President*—A. H. Van Gorder, Cleveland, Ohio; *Second Vice-President*—O. C. Lang, Houston, Texas; *Third Vice-President*—William Jay Schieffelin, Jr., New York; *Fourth Vice-President*—J. J. McNamara, New Orleans, La.; *Fifth Vice-President*—F. H. Garrett, Council Bluffs, Iowa.

New Members of Board of Control.—R. R. Ellis, Memphis, Tenn.; Sewall D. Andrews, Minneapolis, Minn.; Ludwig Schiff, Los Angeles, Cal.; M. E. Sherman, Des Moines, Iowa. *Chairman*, Sewall D. Andrews, Minneapolis, Minn.

Secretary—Charles H. Waterbury, New York; *General Representative*—Francis E. Holliday, New York; *Treasurer*—Title Guaranty and Trust Company, New York.

The reports of officers and committees of the N. W. D. A. always are of interest to retail pharmacists. In selecting parts of the proceedings for inclusion in these columns, liberty is taken in reprinting parts of a summary of recommendations by the Board of Control, from the extra edition of the *Oil, Paint and Drug Reporter* of October 17.

"The Board of Control presented resolutions—and they were unanimously approved—commending the Secretary of the Treasury and the Commissioner of Internal Revenue for their reasonable attitude toward the supervision and regulation of the industrial and medical use of alcohol. Special mention was made of the revocation of obnoxious regulative provisions and of the appointment of the Alcohol Trades Advisory Committee. The resolutions also recorded the unalterable opposition of the association to the proposal to create an independent prohibition bureau as attempted in the Ernst-Wood bill.

"In commending the efficiency of the secretary's office, the board recommended that the association continue its traditional policy of confining its activities to matters of direct interest to the wholesale drug trade.

"The special committee on prohibition problems was continued and the Board concurred in its recommendations that efforts be continued to bring about the separation of Federal supervision of industrial alcohol from policing under the statutory prohibition of traffic in and use of intoxicating beverages.

"Commending highly the report of the committee on proprietary goods, the Board approved a motion that the report be immediately printed and that copies be sent to all members and to proprietary firms who desired them."

"Coöperation with the Harvard Bureau of Business Research in connection with a plan for uniformity in cost accounting factors was continued for another year and the Board asked that the members accord the bureau their support in contributions and information."

"The committee on metric weights and measures was discontinued, but the affiliation of the association with the metric association was continued, the Board approving thoroughly the principles advocated by the metric organization.

"Credit losses were called too high. The Board was of the opinion that, as a general rule, interest should be charged on overdue accounts. It was not convinced that a credit bureau was practicable, and opined that credit information should be restricted to reciprocal exchange.

"Heartily indorsing the report of the national councilor in the Chamber of Commerce, U. S. A., the Board suggested reaffiliation and the reappointment of Councilor E. D. Taylor.

"Serious consideration of the profit insurance idea was suggested to the members.

"Indorsement was given the recommendations of the committee on price maintenance and the members were urged to let Congress know of their interest in the subject.

"The Board concurred in a recommendation that the local association idea be pushed to expansion.

"Opposition to the injection of politics into the administration of liability and compensation laws was urged.

"Critical inspection of imported crude drugs was recommended."

The Constitution was amended, advancing the dues for active membership to $100, and for associate membership to $50. Atlantic City was chosen for the 50th Anniversary Meeting, to be held next year.

BOOK NOTICES AND REVIEWS.

The British Pharmaceutical Codex, an Imperial dispensatory for the use of medical practitioners and pharmacists. By the direction of the Council of the Pharmaceutical Society of Great Britain. Published by the Pharmaceutical Press, 72, Great Russell St., W. C., London.

This work represents the third edition of the Codex. As indicated above, the book simulates the dispensatories; it is, however, more convenient to use and describes by far a greater number and variety of preparations. The style of the book is not changed from the original edition, a tribute to the painstaking efforts of the pioneers in this valuable work.

It contains 1669 pages, of which more than 100 are given over to the index. The book comprises two principal parts. The first part is devoted to a description of simple drugs. The second part, styled the British Pharmaceutical Codex Formulary, covers some 340 pages presenting formulas for a great number of preparations. In the monographs of the simple drugs a decided advantage is found in having printed in bold-face type the words "incompatible," "administered," "poisoning," "internally," and "external," which direct attention directly to specific information sought without the necessity of going through the entire article.

Another most helpful feature is found following the monograph of the drug in a list of preparations into which the drug enters. Each preparation is described in considerable detail as to the strength, method of preparation, dose and synonym. After the monograph of Opium no less than thirty-two of its preparations are listed.

In the second part of the book, the Formulary, may be found directions for the preparation of baths, ampuls, nasal bougies, medicated gauze and cotton, eye lotions, surgical dressings, bandages and enemas, which are not commonly given in similar books.

The quantities in the several formulas are given first in the metric system, then in the Imperial system. It has a similar dual system of weights and measures in the formulas that provoked so much criticism of our third National Formulary. The Codex Revision Committee evidently seeks to forestall such criticism by printing in the Formulary a statement, that "in certain instances there may not be exact correspondence between the two sets of figures."

After the several recipes comes a collection of formulas for test solutions and microscopical stains; a table of coefficients of expansion for a number of liquids; an extensive pharmacological and therapeutic index; and about five pages devoted to proprietary trade-names and their chemical equivalents.

For a volume of such proportions it is gratifyingly free from typographical errors and imperfections.

The work of revision has been admirably done and reflects much credit on the Revision Committee.

The British Pharmaceutical Society merits the gratitude of medical men and pharmacists for this distinct addition to the reference books for the allied professions.

CLYDE M. SNOW.

Surface Tension and Surface Energy and Their Influence on Chemical Phenomena. By R. S. Willows, M.A., D.Sc., and E. Hatschek. 3rd Edition, viii + 136 pages with 25 illustrations. P. Blakiston's Son and Co., Philadelphia, 1923.

The third edition of this small volume while continuing to carry the two names of the original authors is the work of Willows alone. His various contributions to the experimental and mathematical development of our knowledge of surface physics and chemistry gives his word the weight of authority.

As in the older editions this volume is divisible roughly into four sections, a discussion of the concepts of surface tension and surface energy, a discussion of the relations between surface tension and the physical and chemical constants of the materials exhibiting such, a special chapter on surface tension as influenced by the electric charge and a final one illustrative of the rôle of surface energy in various physical and chemical processes as those of emulsification, dyeing, tanning and flotation.

The final chapter is by far the most clearly written in the volume and might well have been put first. While the original authors have limited their mathematics "to what is absolutely essential" it still constitutes the bulk of the volume. Their decision to give "few experimental details" is also not without its shortcomings. How can the critical student know that a physical principle is really a principle except as he can pick no flaw in the experiments upon which such principle is founded. Willows' additions to the third issue

include "an account of the work recently done on the properties of thin films, polarized molecules, and boundary lubrication." These turn out as excellent paragraphs on the work of Harkins, Langmuir and Hardy.

The volume will commend itself to those who wish a quick look into the field which it covers. For beginners there is lacking that gradual building up from experimental fact to law and hypothesis essential to good pedagogy; for mature students not enough is given to make the little learning not dangerous historically or critically. Willows is everywhere conscious, however, of the difficulties of his theme. Much praise must therefore be given him for his constantly expressed doubts regarding the adequacy of a given explanation and his advice to seek out the original communications of the authors whom he cites.

M. H. F.

Chemistry, inorganic and organic with experiments. By Charles Loudan Bloxam. 11th edition, revised by Arthur G. Bloxam, F.I.C., consulting chemist and chartered patent agent; and S. Judd Lewis, D.Sc., F.I.C., consulting and analytical chemist. With 310 illustrations. 10 x 7 inches, 832 pages, cloth. Philadelphia. P. Blakiston's Son & Co. Price $9.00.

This volume presents a concise compilation of both theoretical and practical material including virtually every phase of chemistry. The continuous success of the work is best attested by the demands that justified the ten revisions, consequent to the first edition, which appeared in 1867.

Casual reflection, in retrograde perspective, relevant to the progress of chemical science in that intervening period of fifty-six years, must necessarily suggest to the reader a patent curiosity regarding the future extent of the advancement of chemistry fifty-six years hence! The size of the type characters has been somewhat reduced, thus accounting for the more compact form of the present volume. Eighty-three chemical elements are listed and their atomic weights tabulated in accordance with the Oxygen standard.

The work is a noteworthy exception among the small minority of recent publications of general chemistry texts, relevant to the accuracy and mature comments concerning the most recent contributions to theoretical chemistry, *i. e.*, present views on atomic structure, the quantum theory, crystalline structure, etc., and including brief notations regarding the epoch-making endeavors of Mosely, Einstein, W. L. and W. H. Bragg and others.

The chapter on spectroscopy having been rewritten and enlarged, includes Mosely's work on the X-ray spectra, and is now equal, if not superior, to even Roscoe and Schorlemmer's exposition of that subject in their magnificent "Treatise on Chemistry"—Volume II, in so far as the inclusion and treatment of the procedure is concerned along general principles. The writers deviated from the usual course in the chapters on organic chemistry, by grouping certain of the aliphatic with the aromatic compounds. This new arrangement is readily appreciated on consideration of the facility afforded for comparison of substances of a similar order in the two divisions. The section devoted to orientation of benzene derivatives is well written, especially clear and well illustrated. Liberal space was allotted to the chemistry of percussion caps, T.N.T., and explosives in general.

The chapter including a discussion of fluorescence and phosphorescence constitutes a valuable repository of reference material along this line of scientific investigation.

Apparatus, graphs, cyrstalline forms, etc., are all neatly illustrated. The index is exceptionally complete with an exhaustive cross index scheme.

The volume is assuredly a valuable contribution to both technical reference and text literature and maintains if not exceeds its original purpose, which has in past years secured the confidence that has hitherto been deservingly bestowed, both in this country and abroad.

SIMON MENDELSOHN.

NEW PUBLICATIONS.

Determination of Hydrogen Ions. By W. Mansfield Clark. 2nd edition. 480 pp. Illustrated. Price, $5.00. Williams & Wilkins Co., Baltimore.

Alcohol in Commerce and Industry. By Charles Simmonds. 119 pp. Price, 3s. net. Sir Isaac Pitman & Sons, Ltd., London.

Inorganic Chemistry. By F. S. Kipping and W. H. Perkin. 734 pp. Price, 8s. 6d. W. & R. Chambers, Ltd., London.

DEATH OF EX-PRESIDENT JOHN F. HANCOCK.

Just before completion of this issue we are advised of the death of Ex-President John F. Hancock, November 12. For sketch see Volume V, JOURNAL A. PH. A., pp. 460 and 793.